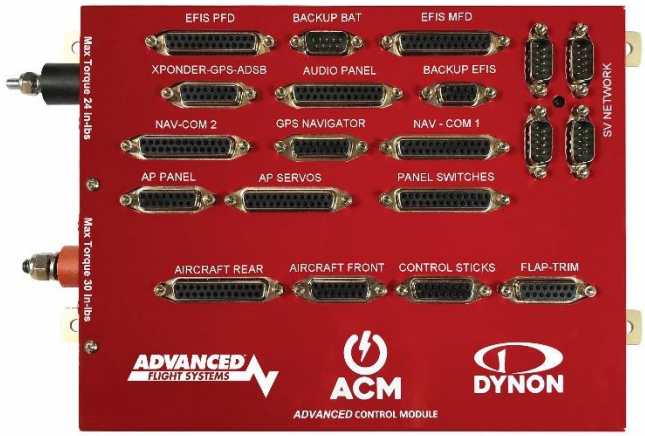
ADVANCED Panel System – Advanced Control Module

Installation Manual



LIMITED WARRANTY / AGREEMENT

Advanced Flight Systems Inc. (“AFS”) warrants its aircraft monitoring system instrument and system components to be free from defects in materials and workmanship for a period of one year commencing on the date of the first flight of the instrument or one year after the invoice date, whichever comes first. AFS will repair or replace any instrument or system components under the terms of this Warranty provided the item is returned to AFS prepaid.

This Warranty shall not apply to any unit or component that has been repaired or altered by any person other than AFS, or that has been subjected to misuse, abuse, accident, incorrect wiring, or improper or unprofessional installation by any person. THIS WARRANTY DOES NOT COVER ANY REIMBURSEMENT FOR ANYONE'S TIME FOR INSTALLATION, REMOVAL, ASSEMBLY OR REPAIR. AFS reserves the right to determine the reason or cause for warranty repair.

1. This Warranty does not extend to any engine, machine, aircraft, boat, vehicle or any other device to which the AFS monitoring system may be connected, attached, or used with in any way.

2. THE REMEDIES AVAILABLE TO THE PURCHASER ARE LIMITED TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE OF THE PRODUCT, AT THE SOLE DISCRETION OF AFS. CONSEQUENTIAL DAMAGES, SUCH AS DAMAGE TO THE ENGINE OR AIRCRAFT, ARE NOT COVERED, AND ARE EXCLUDED. DAMAGES FOR PHYSICAL INJURY TO PERSON OR PROPERTY ARE NOT COVERED, AND ARE EXCLUDED.

3. AFS is not liable for expenses incurred by the customer or installer due to AFS updates, modifications, improvements, upgrades, changes, notices or alterations to the product.

4. The pilot must understand the operation of this product before flying the aircraft. Do not allow anyone to operate the aircraft that does not understand the operation of the monitoring system. Keep the operating manual in the aircraft at all times.

5. AFS is not responsible for shipping charges or damages incurred during shipment.

6. No one is authorized to assume any other or additional liability for AFS in connection with the sale of AFS products.

7. IF YOU DO NOT AGREE TO ACCEPT THE TERMS OF THIS WARRANTY, YOU MAY RETURN THE PRODUCT FOR A FULL REFUND. IF YOU DO NOT AGREE TO ACCEPT THE TERMS OF THIS WARRANTY, DO NOT INSTALL THE PRODUCT.

8. This warranty is made only to the original purchaser and is not transferable. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR OBLIGATIONS, EXPRESS OR IMPLIED, ORAL OR WRITTEN. AFS EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER AGREES THAT IN NO EVENT SHALL AFS BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING DAMAGES TO THE ENGINE OR AIRCRAFT, LOST PROFITS, LOSS OF USE, OR OTHER ECONOMIC LOSS. EXCEPT AS EXPRESSLY PROVIDED HEREIN, AFS DISCLAIMS ALL OTHER LIABILITY TO THE PURCHASER OR ANY OTHER PERSON IN CONNECTION WITH THE USE OR PERFORMANCE OF AFS' PRODUCTS, INCLUDING BUT NOT LIMITED TO STRICT PRODUCTS LIABILITY IN TORT.

IMPORTANT PRE-INSTALLATION NOTICE

Before installing the monitoring system, READ THE LIMITED WARRANTY / AGREEMENT. There is information in the Limited Warranty / Agreement that may alter your decision to install this product. IF YOU DO NOT ACCEPT THE TERMS OF THE LIMITED WARRANTY / AGREEMENT DO NOT INSTALL THE PRODUCT. The product may be returned for a refund if you do not accept the terms of the Limited Warranty / Agreement.

Before starting the installation, make sure that your planned installation will not interfere with the operation of any controls. The installer should use current aircraft standards and practices to install this product. Refer to AC 43.13-2A, *Acceptable Methods, Techniques, and Practices - Aircraft Alterations* and AC 43.13-1B, *Acceptable Methods, Techniques, and Practices--Aircraft Inspection and Repair*.

Table of Contents

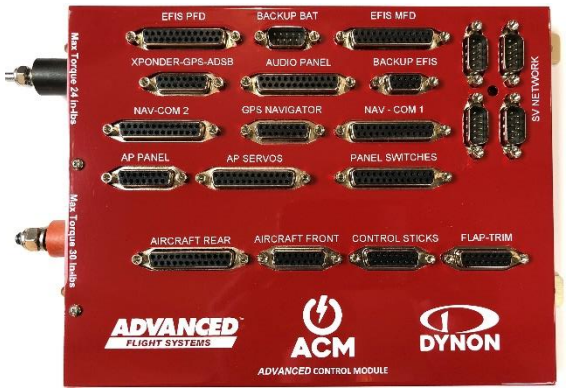
MANUAL REVISION HISTORY

REVISION	DATE	DESCRIPTION
1.0	12/31/2014	Original Release
2.0	4/9/2015	Updates
2.4	11/5/2015	IFD540 Configuration, Crimpers
2.5	12/23/2015	Updates
2.7	10/11/2016	SV EMS
3.0	12/16/2016	RV-14 Data, ACM Torque
4.0	9/1/2017	ACM-ECB
4.4	1/2/2018	Updated RV-14 Canopy and Harness Drawings
4.5	2/21/2018	Updated test procedure and CHT setup
4.6	2/23/2018	Updated IFR/VFR Testing
4.7	3/8/2018	Added Serial Port to plug chart
4.8	3/12/2018	Updated Install Checklist and Flap Testing
5.0	3/23/2018	Updated for ACM-ECB
5.1	4/6/2018	Added ACM-ECB Switch Settings
5.2	7/3/2018	Added Harness Drawing Section
5.3	2/1/2018	Added Panel Switch Operation Section
6.0	2/8/2018	Added ACM-ECB and Switch Operation, Harness Drawings
6.1	2/18/2018	Updated RV-14 schematics, Added Sportsman Drawings ,
6.2	9/25/2018	Updated Sportsman and Front Harness Drawings
6.5	3/14/20	Sportsman Wiring
7.0	3/30/22	Updated IFD Settings, Electronic Ignitions
7.2	1/2/2023	Added G5 Backup Settings
7.3	2/9/2023	Changed GTN and IFD ARINC OUT to High Speed
7.4	2/15/2023	Added IFD ADS-B Troubleshooting
7.5	6/12/2023	Added Schematics
7.6	9/2/2023	Changed Rear Harness drawings for Remote Radio
8.0	11/3/2023	IFD and GTN COM Radio Tuning, updated switch settings

Overview

The Advanced Quick Panel system is based on our Advanced Control Module "ACM". The ACM is available in two different versions, fused or electronic circuit breaker. The fused version uses lighted ATO style fuses for circuit protection. The electronic circuit breaker "ECB" version has internal circuit current monitoring and will shut off a circuit if the current is too high. With the ACM-ECB you can monitor the current of each circuit and reset any tripped circuits from the EFIS. The ACM is the main power distribution center for the aircrafts electrical system. The avionics, headsets, aircraft lights, autopilot servos, trim servos, flap motor, control sticks and panel switches all get connected to the ACM. Using the ACM with its plug and play features vastly simplifies an aircraft's wiring and troubleshooting. The ACM also makes future upgrades extremely easy. Want to add an IFR Navigator in the future? No problem, just plug it into the ACM NAV-COM and GPS NAVIGATOR plugs. The complicated and time consuming (Audio Panel, GPS RS-232 data, NAV ARINC data and GPS ARINC) wiring is already done.

The ACM must never be used to power anything critical to Engine operation, including: Electronic Ignition, Electronic Fuel Injection or high pressure main electric fuel pumps.



ACM module with Electronic Circuit Breakers

ACM module with Fuses

ACM Features

- **27 dedicated channels of circuit protection including**: PFD, MFD, BACKUP EFIS, TRANSPONDER-ADSB, COM 1, NAV 1, COM 2, NAV 2, GPS NAVIGATOR, AUDIO PANEL, CABIN LIGHTS, DEFROST, ALTERNATOR, AUX POWER, STARTER, BOOST PUMP, PITOT HEAT, LEFT LANDING LIGHT, RIGHT LANDING LIGHT, NAV LIGHTS, STROBE LIGHTS, TRIM MOTORS, AP SERVOS, FLAP MOTOR.

  ACM-ECB ONLY: BACKUP ALTERNATOR, LIGHTS, SPARE POWER CIRCUIT, CABIN LIGHT SWITCH
- **Built in SV-ARINC module**
- **Multi Step Flap Positioning System**
- **Wig-Wag Lighting Circuit (airspeed controlled)**
- **Panel Dimmer**
- **Trim Controller (must have SV-AP-PANEL)**
- **SV Network Hub (4 Port + AP Servos)**
- **Panel Switch Interface with support for switch lights**
- **Control Stick Interface**
- **Alternator Field overvoltage protection,** shuts off the alternator field at 16 volts

Advanced Panel Customer Order Form

ACM Panel Switch Operation

The ACM can be used with either our standard switch modules using a 25 pin ribbon cable or custom switches wired to the ACM ***PANEL SWITCHES*** DSUB-25 pin connector. The operation of the panel switches should be the same for either a Skyview or AF-5000 equipped panel.

CAUTION: Do not fly the aircraft until you review and completely understand the proper use of each panel switch.

MASTER Turns on the Aircraft Master relay providing power to the ACM Main Power Input Red Post, this will turn on the EFIS PFD. This switch does not connect to an ACM Input.

ALT Signal to ACM to turn on the Alternator Field Power. ***You should never turn ON the ALT switch with the MASTER switch OFF***

AVIONICS Signal to ACM to turn on the Avionics Bus in the ACM (EFIS MFD, Com1, Com2, Nav1, Nav2, Transponder, ADSB, Audio Panel)

AUTOPILOT Signal to ACM to turn on the Autopilot Servo power. ***This switch must be ON before the Master Switch is turned on***. We recommend that this switch be left in the ON position and only turned off if you need to turn OFF power to the Autopilot Servos.

BOOST PUMP Signal to ACM to turn on the Electric Boost Pump

STROBE / Signal to ACM to turn on the STOBE and NAV Lights

NAV Signal to ACM to turn on the NAV Lights only, No Strobe. This is normally used when flying in the clouds.

LAND LT / Signal to ACM to turn on the Left and Right Landing Lights

PULSE Signal to ACM to alternate the Left and Right Landing Lights "wig-wag mode" when above the configured airspeed. The pulse airspeed is set in the **SET** > **CAL** > 21. **Electrical Configuration** menu.

PITOT Signal to ACM to turn on the Pitot Heat

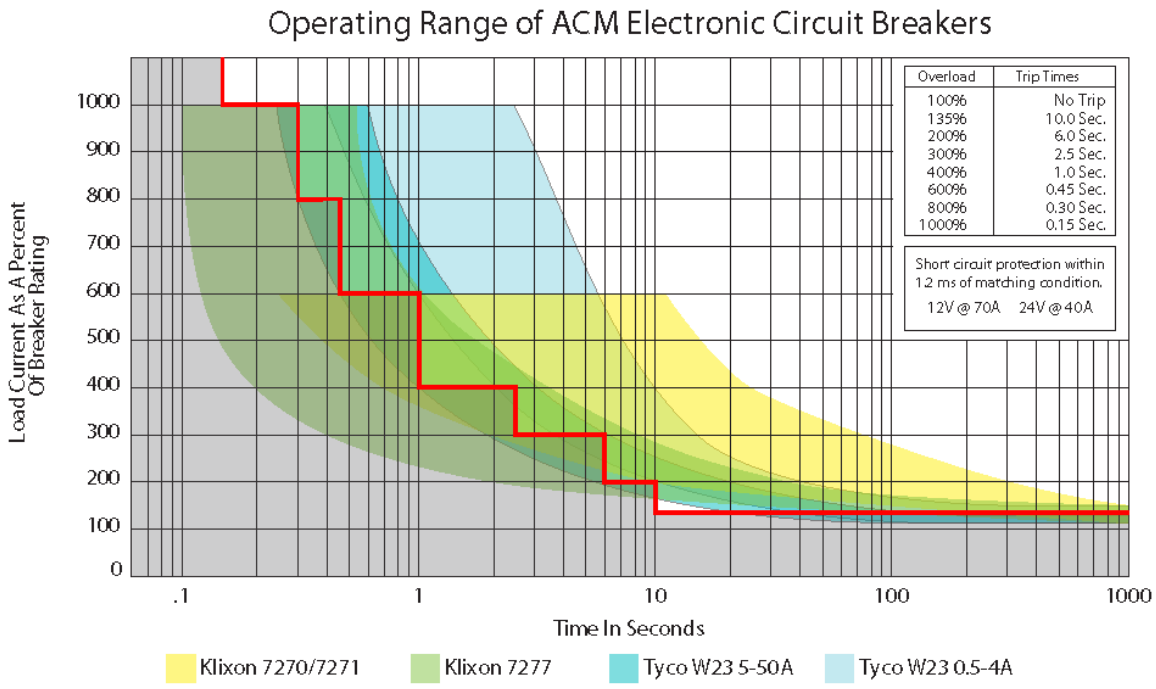
DEFROST Signal to ACM to turn on the Defrost fans

FLAPS Optional panel switch to run the flaps up and down. Many installations will only have a flap switch on the control stick.

ACM-ECB Electronic Circuit Breaker Operation

The ACM-ECB is a solid-state system that replaces traditional buss bars, thermal circuit breakers, fuses and mechanical relays. The electronic circuit breaker is a solid-state circuit that monitors and reports the current for each circuit to an attached EFIS. If the current in the circuit exceeds the trip setting the ACM-ECB will turn off the circuit and report it on the EFIS screen. The tripped ECB can then be reset from the EFIS > ELECTRICAL menu. The current tripped state is preserved over a Master Relay power cycle for all channels other than the PFD EFIS circuit. All the circuits can be monitored from the EFIS Electrical page giving you far more information than a traditional circuit breaker or fuse.

CAUTION: Do not fly the aircraft until you review and completely understand the proper use of the EFIS Electrical Circuit Breaker Page.



The red line indicates the trip level of the ACM-ECB Channel

AF-6600 / AF-5000 Electrical Circuit Breaker Page

You access the Circuit Breaker electrical page by pressing the [CHECK] button followed by the [ELEC] button.

Total ACM-ECB Current AMPs being used

ACM-ECB Input Voltage

ACM-ECB Status

Landing Light Mode

A **Green Bar** indicates the circuit is turned ON. The current Circuit Amperage being used is displayed to the right of the circuit name.

A **Red Bar** indicates the circuit is Tripped and turned OFF.

The bottom of the page displays the circuit information for the highlighted circuit:

- **Circuit Name**
- **Rating in AMPS**
- **Controlling Switch**
- **Status**

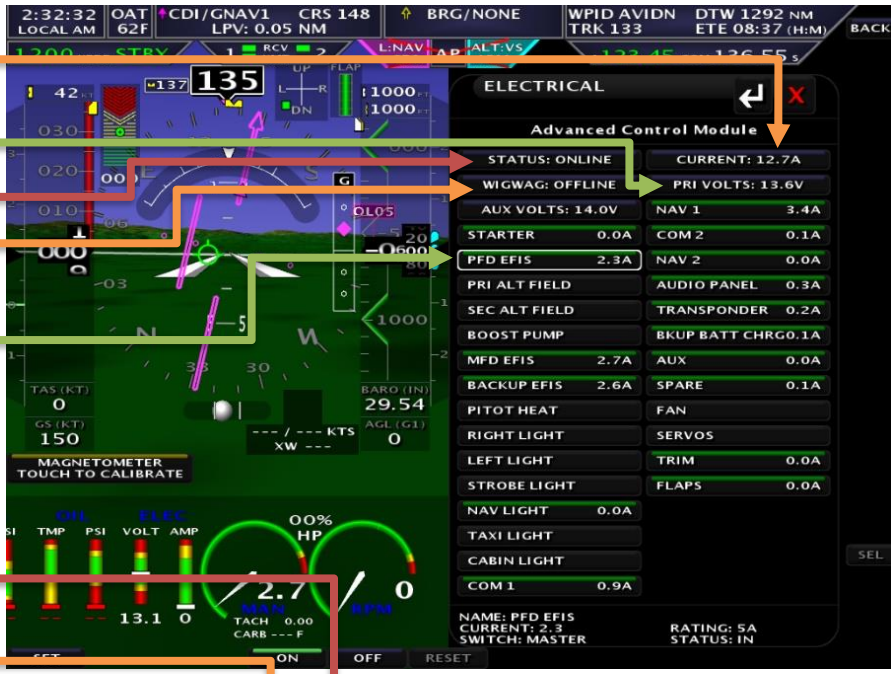
Highlighted Circuit Control Buttons

[SET] Lets you change the circuit breaker size

[ON] Turn ON the Circuit, Ignores the switch position

[OFF] Trip the Circuit, must be RESET before you can turn it back ON

[RESET] Reset the Circuit Breaker



The FLAPS circuit also has buttons that enable you to move the flaps UP and DOWN independent of the control stick or panel FLAP switch. You should verify proper flap direction from this page before programming the flap positions. If the flaps are backwards you can reverse the polarity from the EFIS CAL Flap Menu. ***If the panel or stick flap control buttons are backwards you will need to swap the button wiring.***

[DOWN] Move Flaps down

[UP] Move Flaps up

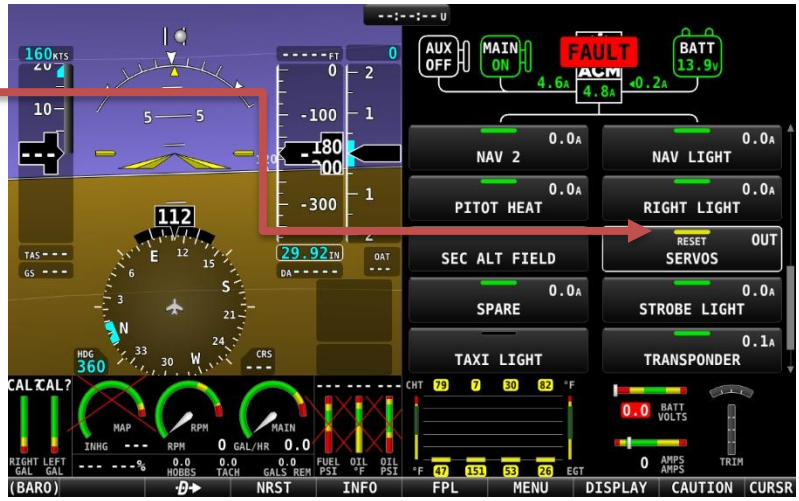
Total ACM-ECB Current AMPs being used

ACM-ECB Input Voltage

A **Green Bar** indicates the circuit is turned ON. The current Circuit Amperage being used is displayed to the right of the circuit name.

A **Yellow Bar** indicates the circuit is Tripped and turned OFF.

To Reset the Tripped circuit, use the right knob cursor to select and then press the knob.



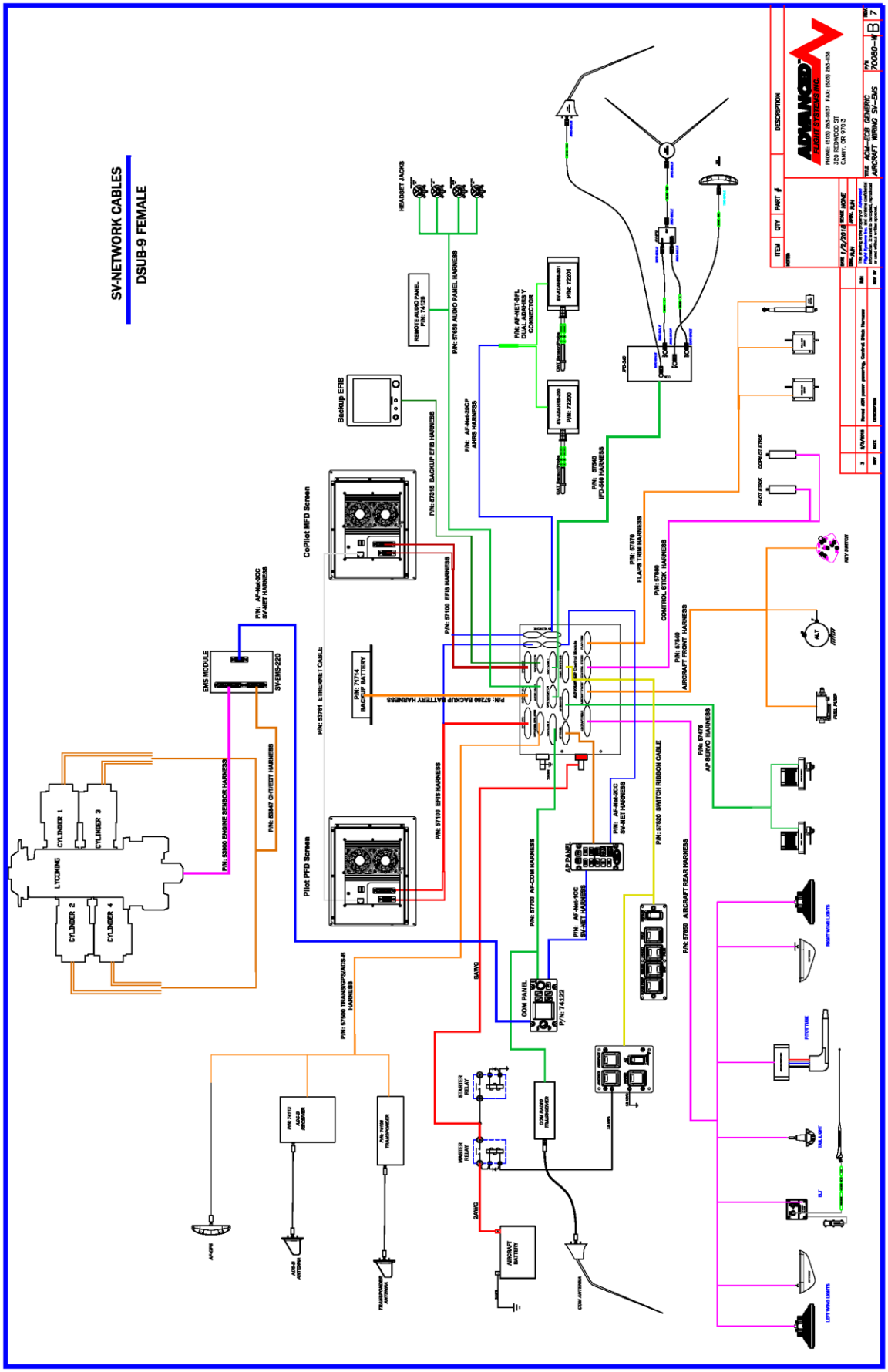
In Flight Emergencies

Tripped Circuit Breaker Advanced Flight Systems does not recommend RESET-ing a circuit breaker in flight. If a circuit breaker trips you should trouble shoot the overcurrent problem after landing.

Electrical Smoke Turn **OFF** the **ALT** and **Master** switches (Red Switches), Turn OFF all the remaining panel switches. The PFD and MFD EFIS along with the attached Dynon GPS should continue to operate from the backup battery. When the electrical smoke stops you can if necessary, turn **ON** the **MASTER** Switch followed by individual critical circuits from the EFIS Electrical Page. ***If you detect smoke after turning on a circuit, you should immediately turn it back OFF***

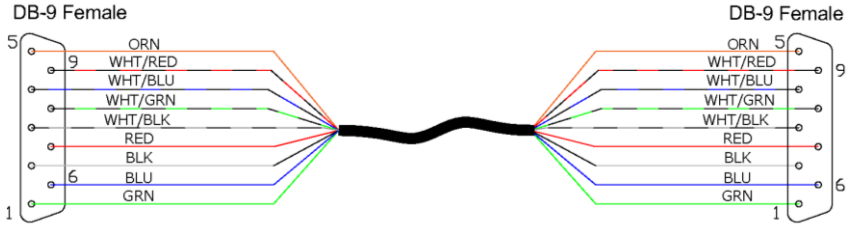
Failed Switch On an AF-6600/AF-5000 EFIS you can turn on individual circuits from the EFIS Electrical Page, Skyview does not have this capability

ACM Aircraft Wiring Overview



Advanced Skyview Network Planning

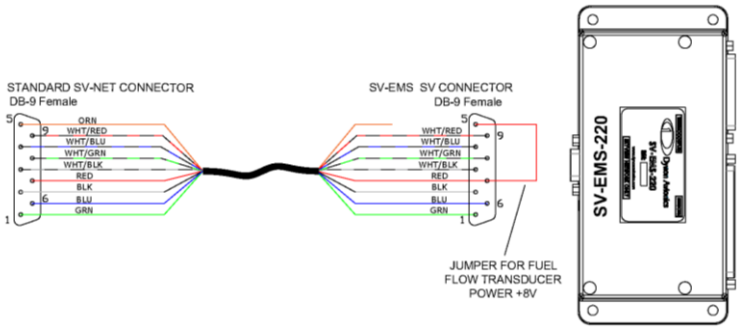
Most of the AFS - Dynon components communicate using our proprietary SV-Network. The SV-Network provides a primary and backup +8 Volt power source and a primary (A) and backup (B) two wire network for the remote devices. The SV-Network is designed to use 9 pin DSUB connectors and a special 9 conductor cable. The AFS-Dynon components all use a 9 Pin DSUB connector with male pins. The SV-NET harnesses all use a 9 pin DSUB connector with female pins. The SV-Network is designed to be a parallel network that does not require any special terminations. As long as all components are connected together in a single network they should communicate. Some of the Dynon components have two SV-Network connectors so you can continue the network connection to the next device. You can use multiple Dynon 5 port hubs connected if you need more ports.



SV-NET CABLE

- The following devices should be connected to the SV-Network using the standard SV-NET cables: AF-6600, AF-5000 , SV-ADAHRS-200, SV-ADAHRS-221, SV-AP-PANEL, SV-KNOB-PANEL, ACM-ECB, SV-COM-RADIO, SV-ARINC-429

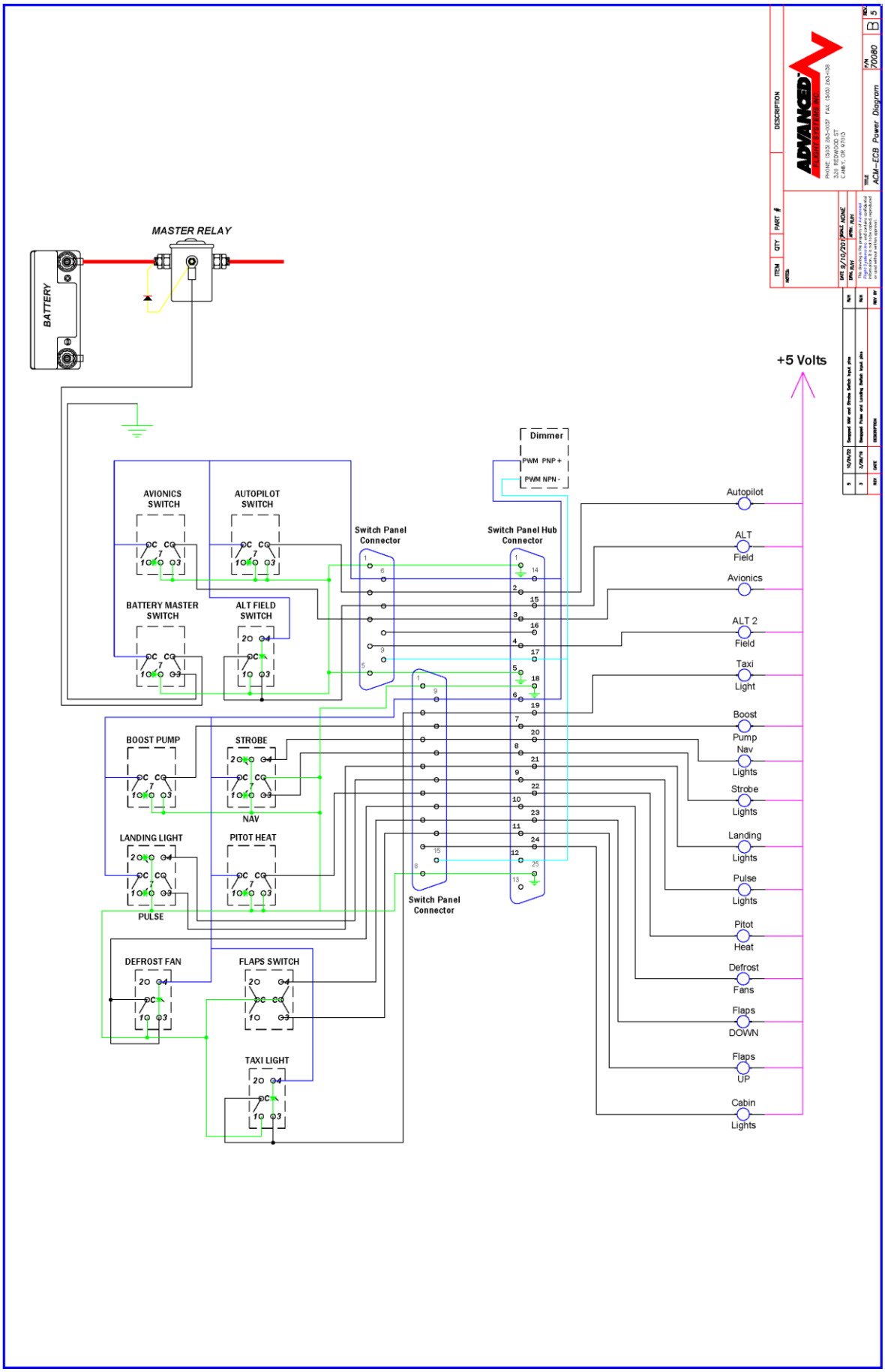
- The SV-EMS-220 or SV-EMS-221 require a special SV-NET cable when using an AF-6600 or AF-5000 with a jumper on the SV-EMS end of the cable to power the fuel flow transducer.



NOTE: When using a Dynon HDX or Skyview EFIS you must use a standard SV-NET cable without the EMS Jumper wire.

Advanced-SV Network Female D9 Pin	Advanced-SV Network Cable Wire Color	Description
1	Green	Network Data 1 A
2	Black	Network Ground 1
3	White with Black Stripe	Network Ground 2
4	White with Blue Stripe	Network Data 2 B
5	Orange	EMS Auxiliary Voltage
6	Blue	Network Data 1 B
7	Red	Network Power 1
8	White with Green stripe	Network Data 2 A
9	White with Red stripe	Network Power 2

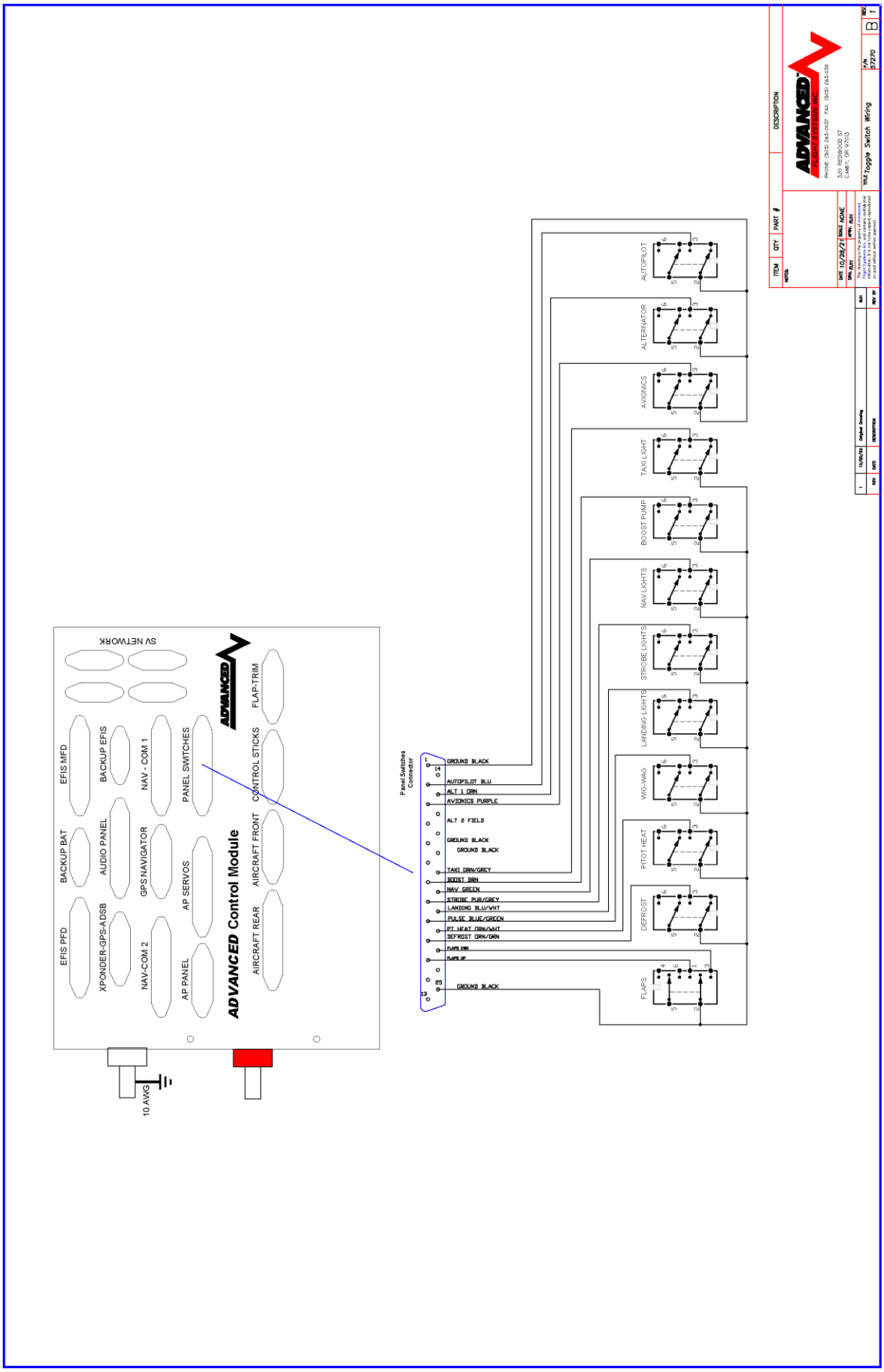
ACM Panel Switch Wiring & Logic



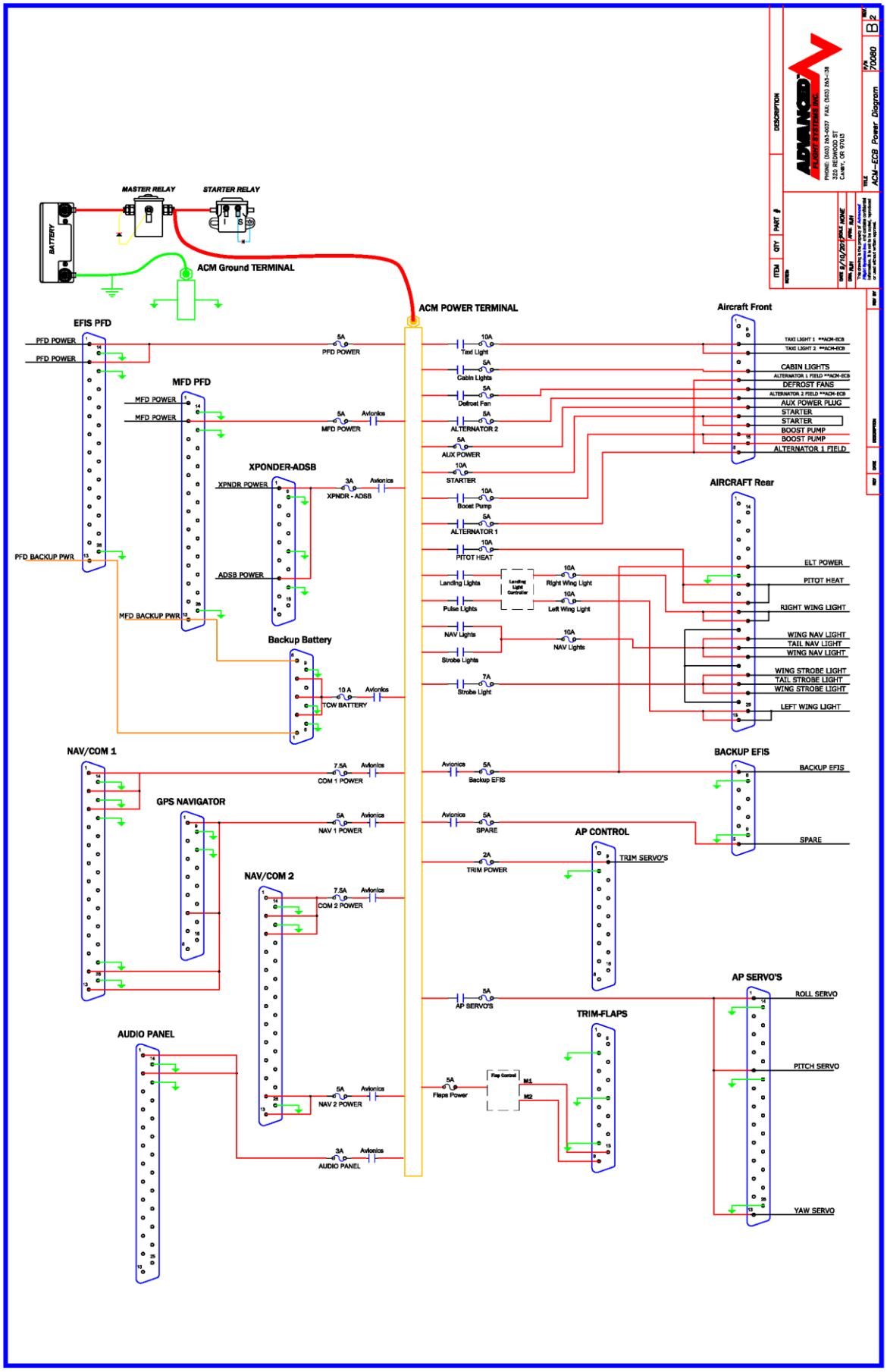
AFS STANDARD SWITCH WIRING COLORS & ACM PIN

Item	Color	ACM Switch Panel Pin	Alternate Use
PWM Dimmer	Red	6,14	
Ground	Black	1,5,18,25	
Taxi Light	Orange Grey	19	Tank Transfer Left
Boost Pump	Brown	7	
Nav Light	Green	20	
Strobe Light	Purple Gray	8	
Landing Light	Blue White	21	
Pulse Light	Blue Green	9	Landing Light-Single Switch
Pitot Heat	Orange White	22	
Defrost Fan	Orange Green	10	Tank Transfer Right
Flaps Up	Yellow	11	
Flaps Down	Yellow White	23	
Autopilot	Blue	2	
Avionics	Purple	3	
Alternator 1	Orange	15	
Alternator 2	White	4	
Cabin Lights	Gray	24	

ACM Toggle Switch Wiring



ACM Power Diagram & Logic



Getting Started

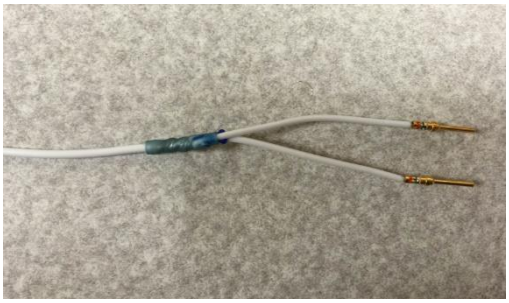
The following is a general recommendation on the steps required to install the Advanced Quick Panel:

- Disconnect the Aircraft Battery
- Remove the old panel from the aircraft (if upgrading). Label each wire as you disconnect them from the old panel switches and components.
- Mark all remote component locations and drill mounting holes using the information from the Remote Component Mounting section of this manual or supplied layout drawings.
- Cut any required clearance holes in the sub-panel.
- Remove EFIS screens from the new Panel for sub panel access. You will need to press the release buttons on the side of the USB data connector to get the cable to release
- Test fit new panel and trim panel ribs for clearance if required.
- Configure the ACM-ECB Jumpers on the back of the unit
- Mount the ACM Module.
- Connect the #8 main power wire from the battery master relay to the red power lug on the ACM. The main power wire should have a ¼" (0.250") ring terminal with a molded plastic cover. Torque to 30 in-lbs
- Connect the #10 airframe ground wire from the airframe ground to the black power lug on the ACM. The ACM main ground wire should have a #10 ring terminal with a molded plastic cover. Torque to 24 in-lbs
- Connect your existing aircraft Landing Lights, Nav Lights, Strobe Lights, Pitot Heat, and ELT to the supplied P/N: 57850 Aircraft Rear Harness ACM connector. You must limit the power on each D-Sub pin to less than 5 amps by using multiple pins at the connector. The recommended procedure is to use 20ga wire for each pin and then use a Solder Sleeve to connect the multiple wires to the larger gage wire going to the device.

SOLDER SLEEVE/1/4", Outside diameter: .050" - .200"

EDMO #: L-C-3
MFR #: STS L-C-3

Termination jackets consist of a heat-shrinkable, transparent, polyvinylidene fluoride jacket with an inner, pre-fluxed, solder preform and two thermoplastic sealing inserts. When heat is applied, the solder melts and flows to provide a superior connection between the ground lead and the shield. At the same time, the two thermoplastic sealing inserts melt and the outer sleeve shrinks to provide an environmentally protected termination. This L-C series of solder jackets does not have a ground lead.

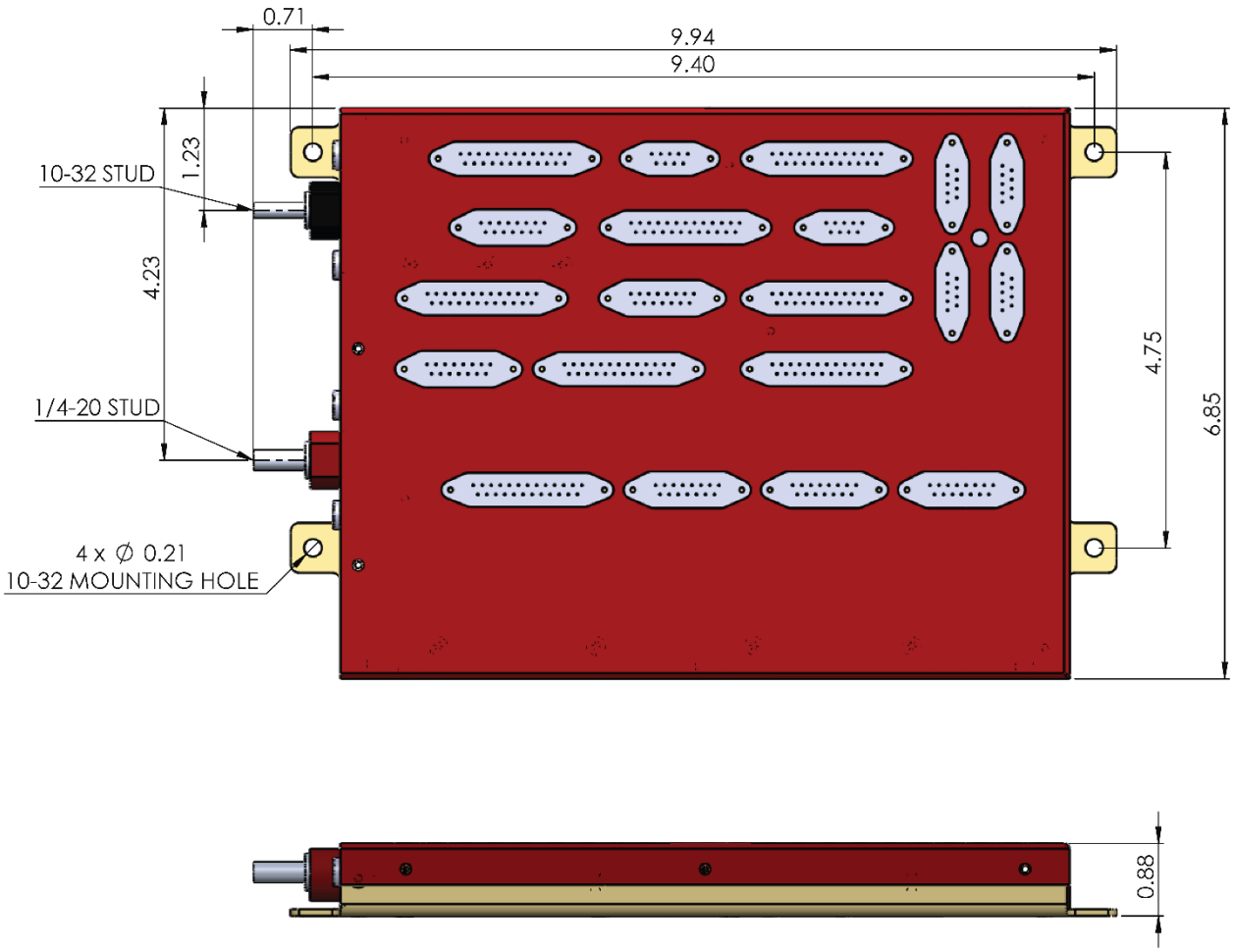


- Connect your existing aircraft Fuel Pump, Alternator, and Starter Switch to the supplied P/N: 57840 Aircraft Front Harness ACM connector.
- Connect your existing aircraft Control Stick switches to the supplied P/N: 57860 Aircraft Control Stick ACM connector.
- Connect your existing aircraft flap and trim motor wiring to the supplied P/N: 57870 Flap and Trim motor ACM connector.
- Mount the SV-200 and SV-201 ADAHRS units in the aircraft using the instructions from the AF-5000 manual.
- Mount the OAT sensor to the bottom of the wing. Wire the OAT sensor to the ADAHRS
- Plump Pitot,Static and AOA to the mounted ADAHRS
- Wire the ADAHRS to the spare SV Network DSUB-9 connector on the ACM module
- Wire the Autopilot servos to the ACM AP Servo connector
- Mount the remote components to the sub panel.
- Mount the AF-GPS module and connect to the ACM Transponder-GPS-ADSB harness
- Connect aircraft Antennas to the remote radios (Transponder, Com, ADS-B in, …)
- Install the Engine Sensors
- Connect the Engine Sensors to the EMS and CHT/EGT Harness. The Engine Harnesses should route to the Left PFD EFIS display in the panel. BE sure to leave service loop of cable to make installing the EFIS PFD easier.
- Mount the Panel using the supplied mounting screws.
- Connect the aircraft Master relay to the screw terminals on the back of the Master Switch PCB board.
- Verify that you have protection diodes installed in your master and starter relay.
- Wire Aircraft Magneto P-Leads to the Key Switch.
- Carefully connect and route all the supplied panel harnesses to the ACM module.
- Double check that all ACM harnesses are connected to the correct DSUB connector.
- Install the EFIS PFD connecting the EFIS Main Connector, EFIS AUX connector, Ethernet, and USB data port wire.
- Install the EFIS MFD and connectors
- Connect the Aircraft Battery, verify that it is charged
- Turn on the Autopilot Panel Power Switch (should always be on before EFIS power up)
- Turn on the Panel Master Switch and verify that the EFIS PFD powers up
- Turn on the Panel Avionics Switch and verify that the EFIS MFD and Radios power up.

ACM-ECB Specifications

The ACM should be mounted on the sub panel behind the instrument panel. The Fused and Electronic Circuit Breaker versions are the same size and mounting. The ACM module should be mounted to the sub panel using four 10-32 screws and nut plates.

ACM Mounting



Do not over-torque the power terminal nuts, they are soft copper and will break if over-torqued.

Red Main Power Terminal Nut Torque: 28 in-lbs

Black Main Ground Terminal Nut Torque: 19 in-lbs

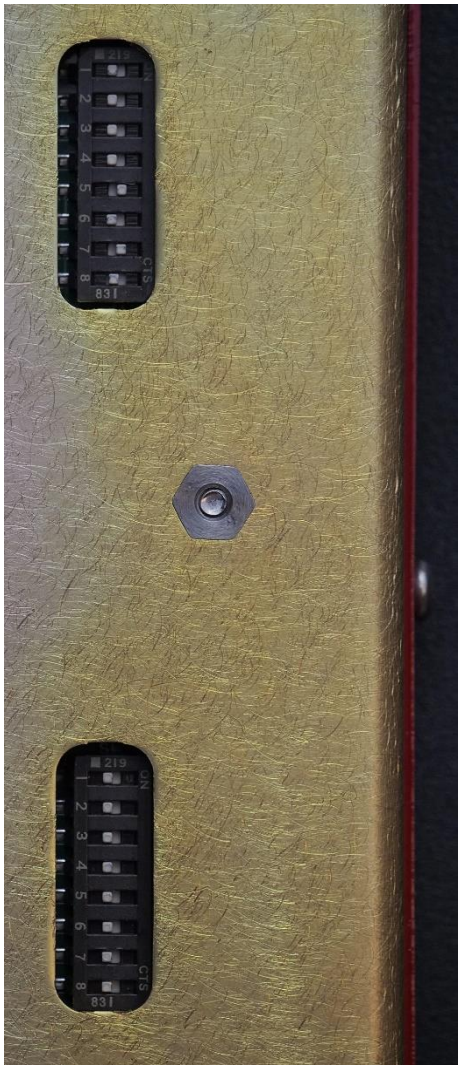
Component Weights

ACM-ECB Module	2 Lbs	3 oz
Master Switch Module		5 oz
Lower Switch Module		7 oz

ACM-ECB Configuration Switch Settings

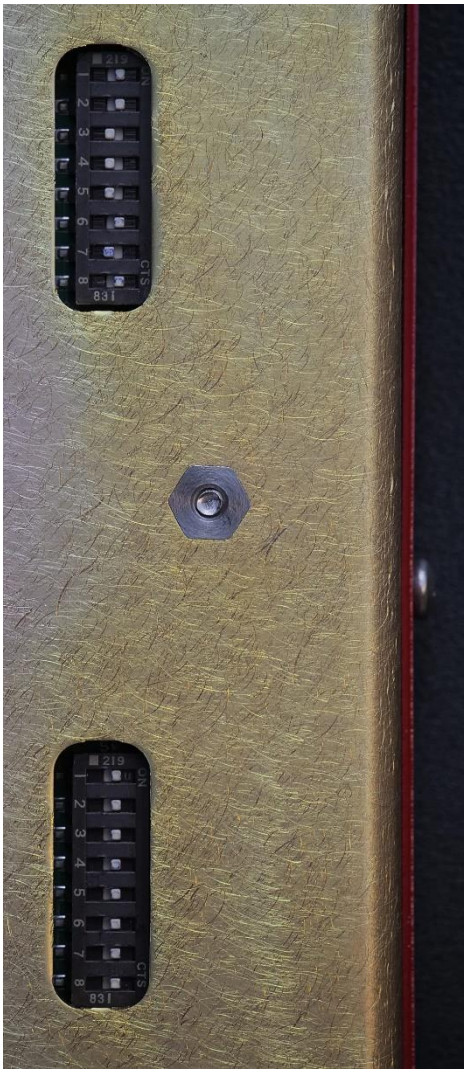
The Electronic Circuit Breaker version of the ACM has configuration switches on the back of the unit must be set for proper RS-232 serial port operation. The switch settings control how the EFIS PFD and MFD serial ports are routed to the attached devices. On a dual (PFD/MFD) EFIS screen AF-5000 system you will have a total of 10 serial ports to control attached devices. On a Skyview system both the PFD and MFD serial ports must be tied together so you end up with only 5 serial ports.

Dual AF-5000/6600 Settings



Single AFS EFIS Settings

Skyview Settings



Dual EFIS AF-5000 Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED (ON) Grey is Switch Position

EFIS AUDIO L			AUDIO PANEL
ACM TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

Single EFIS AF-5000 Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED (ON)

EFIS AUDIO L			AUDIO PANEL
AUDIO P TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
AUDIO P RX<	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

SKYVIEW EFIS Settings

SW1 >> CLOSED (ON) Grey is Switch Position

ACM RX<	PFD 0 TX	MFD 0 TX	>BACKUP EFIS RX
ACM TX>	PFD 0 RX	MFD 0 RX	<BACKUP EFIS TX
	Spare	spare	
NOT SUPPORTED	ARINC SP2 TX	GPS NAV RX	>GPS Nav Fuel Flow
PFD FUEL FLOW>	PFD 4 TX	GPS NAV RX	>GPS Nav Fuel Flow
	PFD 4 TX	MFD 4 TX	>DYNON GPS RX
PFD AVTN data<	PFD 4 RX	GPS NAV TX	<GPS Nav AVTN DATA
	PFD 4 RX	MFD 4 RX	<Dynon GPS TX

SW2 >> CLOSED

EFIS AUDIO L			AUDIO PANEL
AUDIO P TX>	PFD 1 TX	MFD 1 TX	>ELT/COM2 TUNE RX
AUDIO P RX<	PFD 1 RX	MFD 1 RX	< COM2 TUNE TX
	SPARE	SPARE	
XPNDR RX<	PFD 2 TX	MFD 2 TX	>CO DETECT RX
XPNDR TX>	PFD 2 RX	MFD 2 RX	<CO DETECT TX
IFD RADIO TUNE RX	PFD 3 TX	MFD 3 TX	>ADSB RX
IFD RADIO TUNE TX	PFD 3 RX	MFD 3 RX	<ADSB TX

DSUB Pin Crimper Tools

Daniels Mil Spec Crimper AFM8
Part Number: M22520/2-01

AFM8 Positioner for Standard D-Sub Connectors
DMC Part Number: K13-1

Less expensive crimpers are available from a number of sources.
Crimper, D-Sub, Closed Barrel Contacts, 4-Way Indent AWG 26-20

Recommended Aircraft Power Wire Size

Circuit Amperage	Use wire size (AWG)
5A	20
10A	18
15A	14
RS-232/ARINC Data signals	22

CAUTION: Do not fly the aircraft until the following check list has been completed.

Never Power the system with an automotive battery charger and the aircraft battery disconnected.

Before Power is applied for the First Time

- Verify ACM-ECB Configuration Switch Settings
- Aircraft ground is properly connected to the ACM Module **BLACK** Terminal Verify relay protection diodes are installed on all large aircraft relays (Master, Starter, Avionics...etc)
- Pitot/Static and AOA plumbing is secured to the correct ports on the ADAHRS
- All Component Harnesses have been properly connected to the correct ports on the ACM module.
- Verify the Ethernet cable is connected to all EFIS screens

Applying Power for the First Time

- The **BLACK** Autopilot switch controls power to the autopilot servos. The Autopilot switch should be ON before powering up the EFIS screens.
- The **RED** Master Switch controls power to the Pilot PFD EFIS screen.
- The **BLACK** Avionics switch controls power to the MFD EFIS and all radios

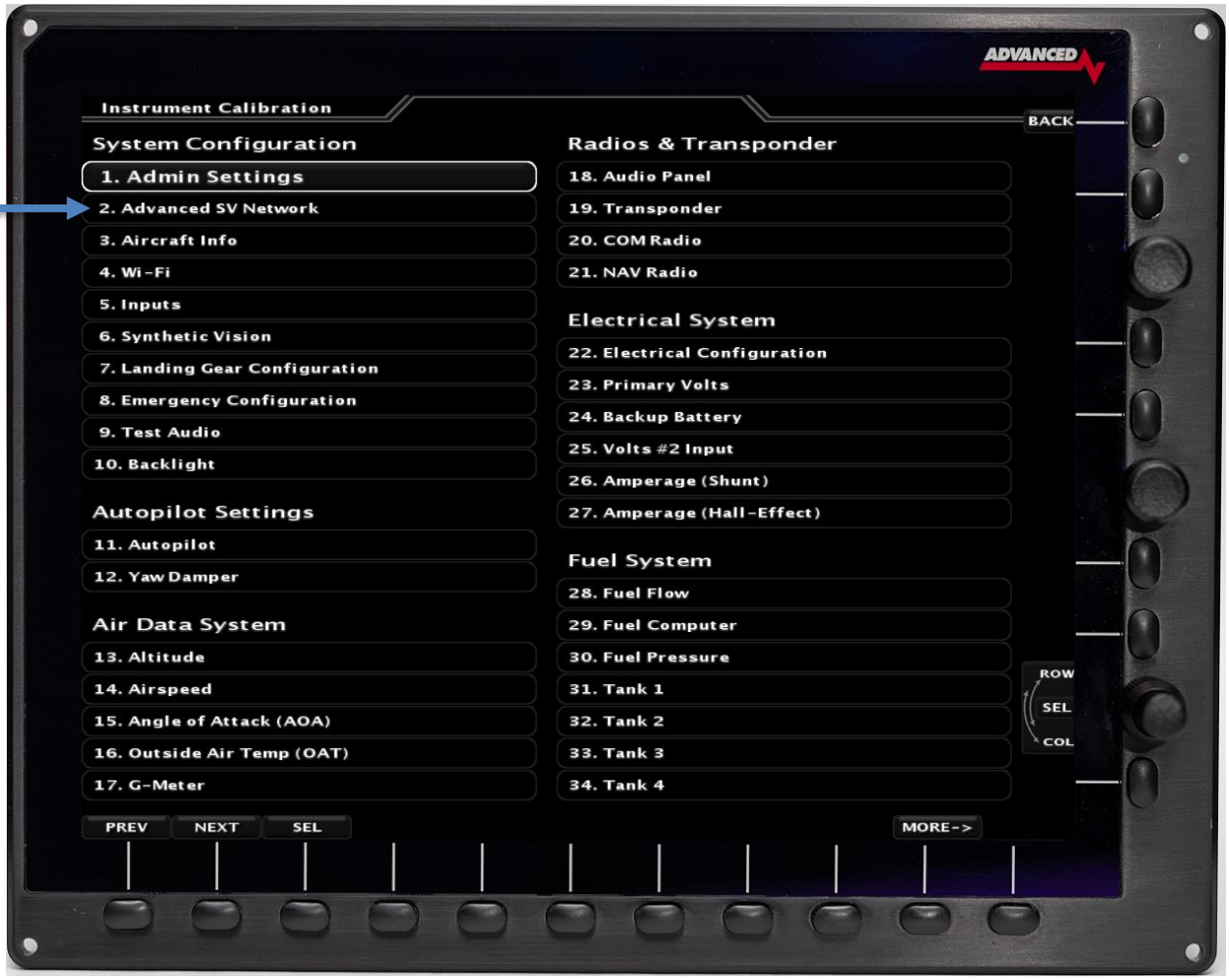
AF-6600 / AF-5000 EFIS Software Configuration (Must be done before first engine start and flight)

Make sure you have the Ethernet cable connected between EFIS screens.

All the AFS EFIS configuration and setup is done from the ***Instrument Calibration*** menu. From the normal EFIS run menu you press **[SET] -> [CAL] and *Hold for 2 seconds*** to enter the Instrument Calibration mode. A list of menu pages and instruments will appear. Use the lower right knob to scroll through the list. There are multiple pages of instruments.

To select an item press the lower knob in while the cursor is on the desired menu item.

To exit the Instrument Calibration menu or a subpage press the **[BACK]** button to return to the previous page.

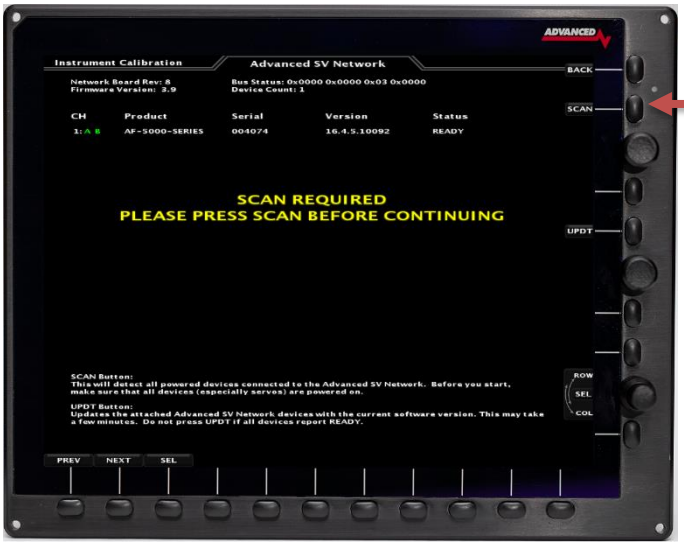


Select **Advanced SV Network** from the Instrument Calibration Menu on the Pilot side PFD EFIS

Advanced-SV Network Configuration

The first thing you should do after powering up the system for the first time is **SCAN** for all the components that are connected to the Dynon Advanced SV Network.

Press **SCAN**

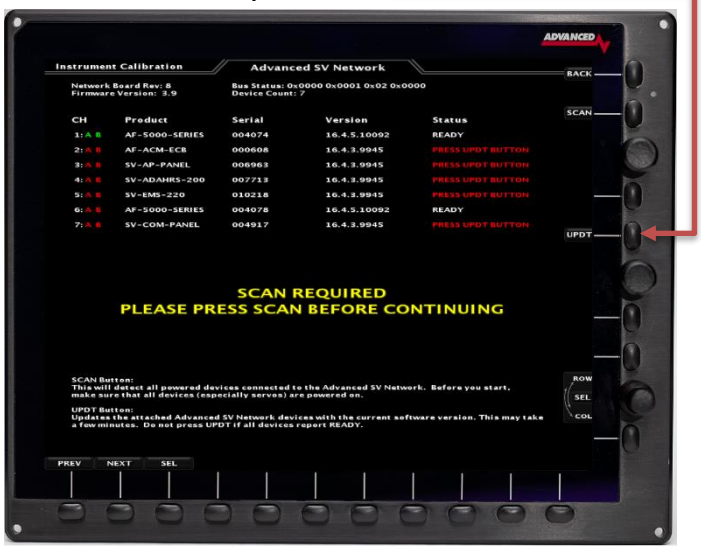


You will need to do a new **SCAN** anytime a different or new component is connected to the SV Network.

Updating Network Components

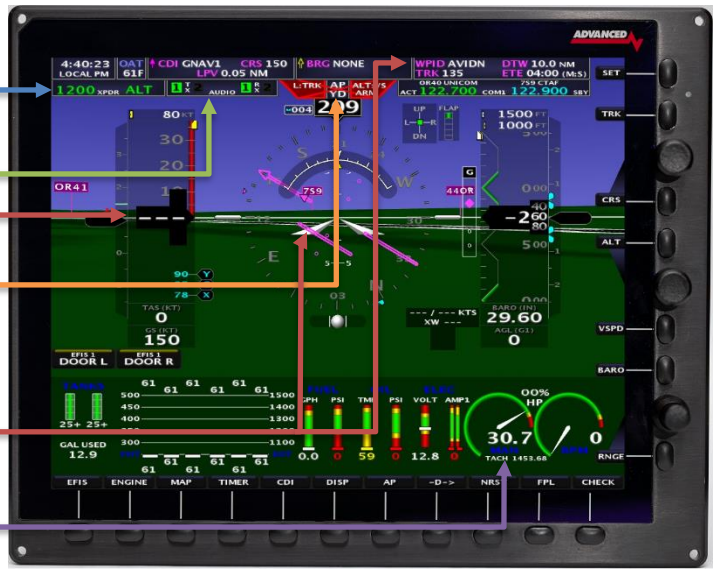
After you **SCAN** for components you should get a list of all the Dynon components that are connected to the SV Network. If any of the components have old software you will need to press the **UPDT** button to update the software on all network devices. Once the new software is loaded on the network devices you will be instructed to power down the system. Once all the EFIS screens are shut down you can turn on power to the systems and verify that all Items are ready (red text gone) and the Chanel **A** and **B** lanes are green. If you have a red **A** or **B** lane you need to check the network wiring.

Need to press UPDT



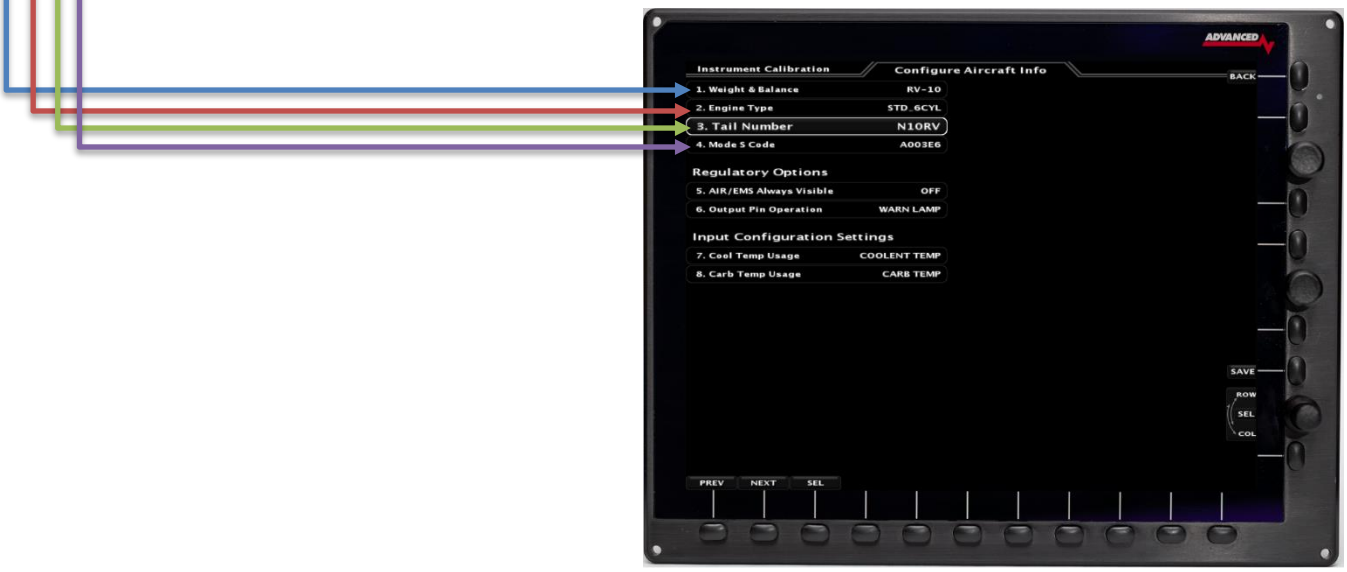
All Components Ready

- Verify that both EFIS screens are getting ADAHRS and Engine Data.



- Aircraft Info Menu settings

  - Weight & Balance – Select Aircraft Model
  - Engine Type – Select Engine
  - Tail Number – Enter Aircraft Tail Number
  - Mode S Code – For N Number registered aircraft the EFIS will calculate, you will need to enter the Mode S code for non N number aircraft.



- Configure and Test the Flaps

Flap Buttons

a. *Verify that the flaps run in the correct direction using the Flaps Up and Down Buttons on the CHECK > ELECTRICAL Page.* If they are backwards swap the motor leads or use the Reverse Polarity setting in the CAL > FLAPS menu.

b. Verify that the flaps run in the correct direction using the panel mounted flap switch or Stick Grip buttons. ***If they are backwards you MUST Swap the wires to the flap switch or buttons.***

c. Verify that the Flap position value changes in the CAL > Flaps menu when you move the flaps.

d. Program the Flap positions in the CAL > Flaps menu

e. Verify the flaps stop at the correct locations. ***If the flaps don't stop at the correct locations recheck the flap direction using the CHECK > ELEC > FLAPS on screen buttons.***

- Calibrate Trim Positions
  - FULL UP
  - CENTER
  - FULL DOWN
- Perform Auto Trim Test

- Calibrate Autopilot servos

➢ With the EFIS screens shut down center the Aileron and Elevator control surfaces.

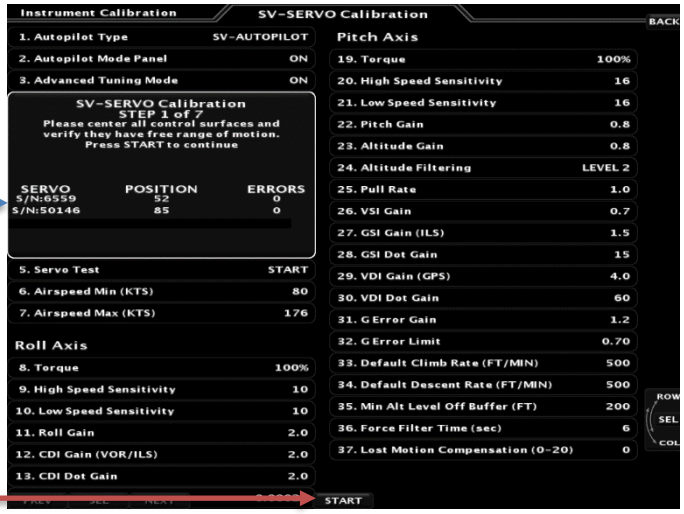
➢ Make sure the panel mounted AUTO PILOT power switch is in the ON position.

➢ Turn on the aircraft Master Switch and Avionics Switch.

➢ Select SET > CAL > **11. Autopilot**

STEP 1 of 7

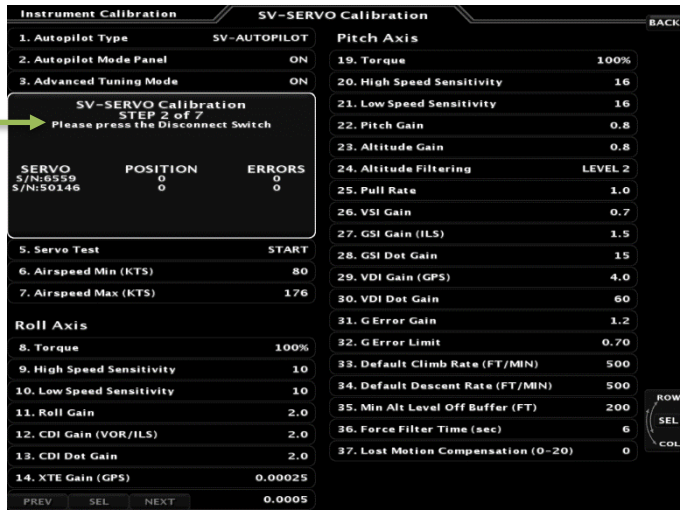
➢ Select **4. Servo Calibration** and verify that the SERVO POSITION values change when you move the controls.



➢ Press **START**

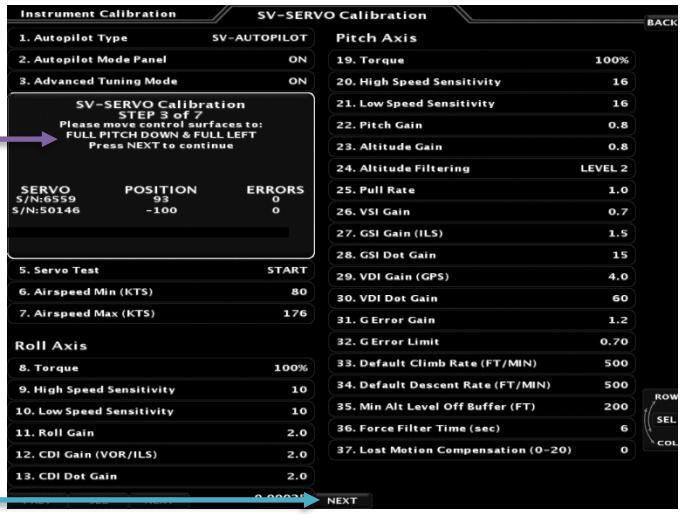
STEP 2 of 7

➢ Press the Autopilot Disconnect Switch (CWS) ***Normally a button on the stick***.



STEP 3 of 7

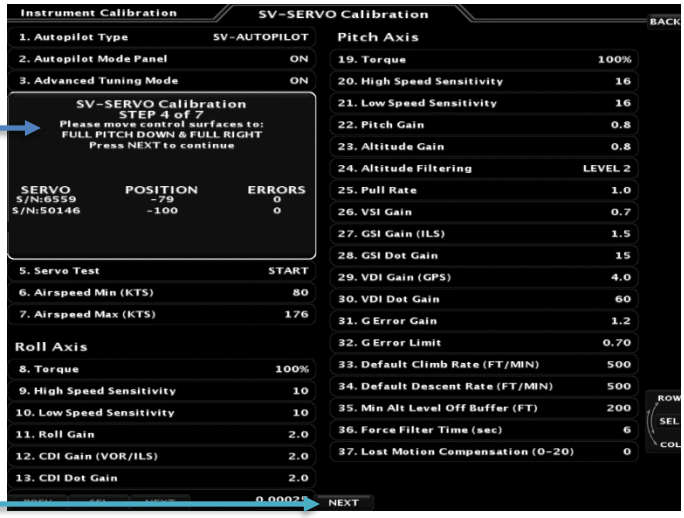
➢ Move the control stick to the full pitch down and full left position.



➢ Press **NEXT**

STEP 4 of 7

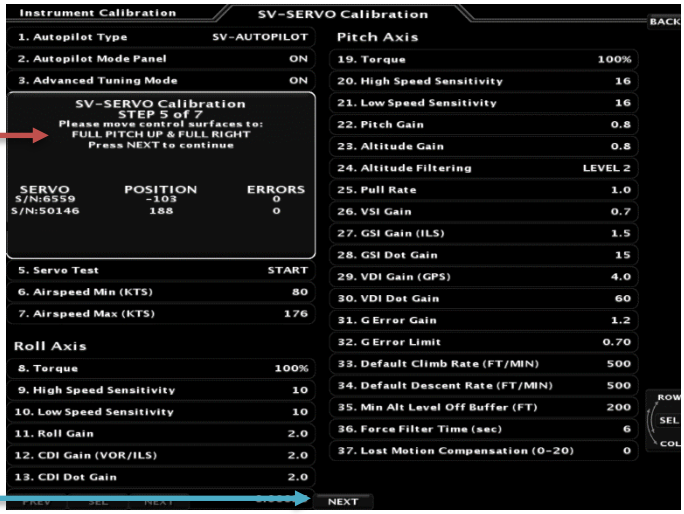
- Move the control stick to the full pitch down and full right position



- Press **NEXT**

STEP 5 of 7

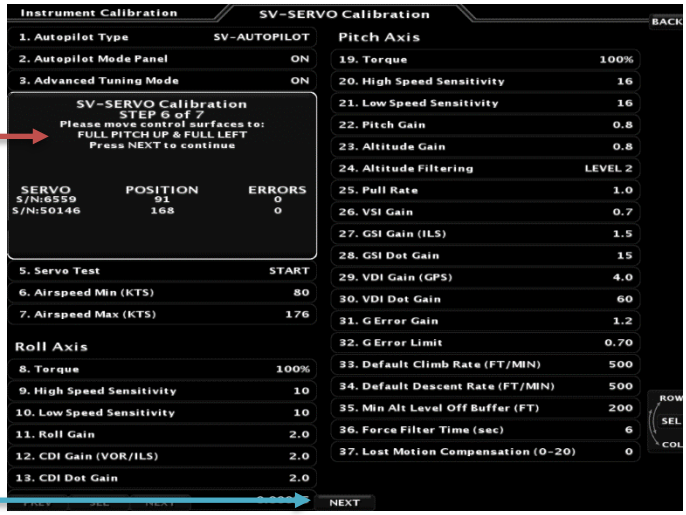
- Move the control stick to the full pitch up and full right position



- Press **NEXT**

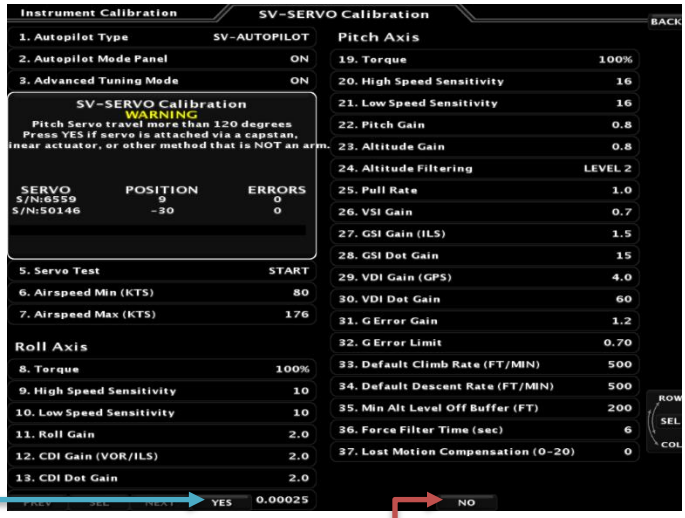
STEP 6 of 7

- Move the control stick to the full pitch up and full left position



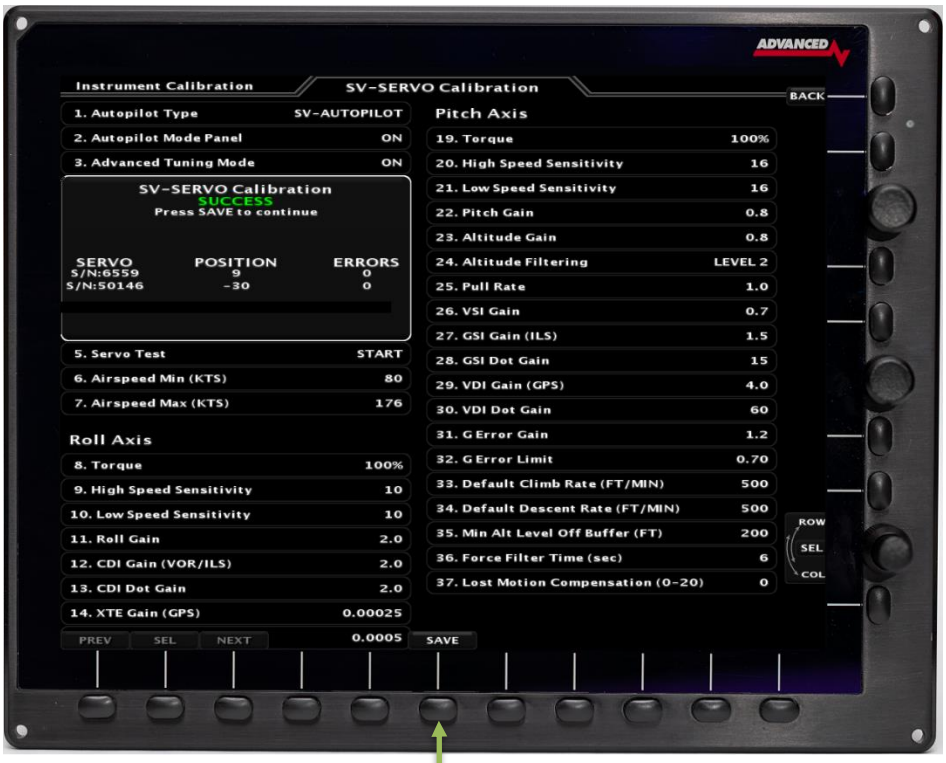
- Press **NEXT**

If you have a Capstan or RV-10 Pitch Servo you will get a **WARNING** about servo traveling more than 120 degrees.



- Press **YES** if you have an RV-10 or Capstan Servo
- Press **NO** if you only have Servo with an arm.

If the Pitch and Roll Servos calibrated correctly you should get a **SUCCESS** message.



- Press **SAVE** to save the Servo Calibration

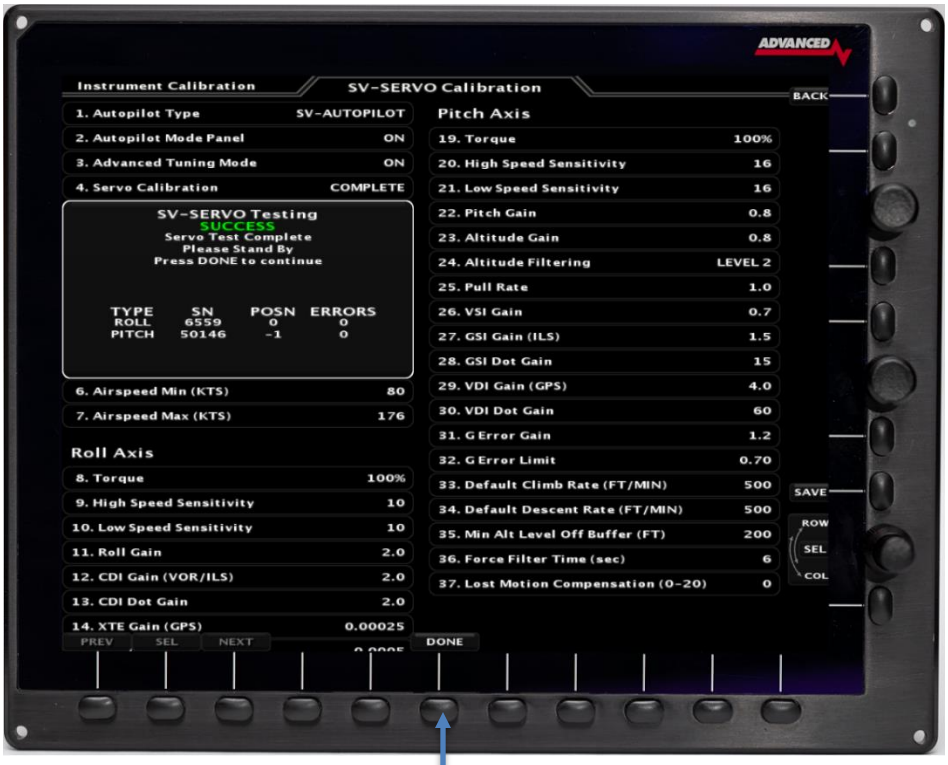
- **Autopilot Servo Test Procedure**

➢ Make sure the control stick is free to move in the full range of motion.

➢ Select **5. Servo Test**

➢ Press **START**

➢ The Autopilot will move the controls 80% of travel in all directions and should complete the test with a **SUCCESS** message.



➢ Press **DONE**

- Configure Airspeed Settings
  - Vne Source
  - V Speeds
  - Performance Settings

- Verify that the Engine parameters are correct on both EFIS screens. Configure the engine sensor types and range markings for your engine. (CHT – J type, EGT K-type, Oil Pressure, Fuel Pressure, …._
  - The RPM Gauge needs to be configured so it will display the correct RPM:

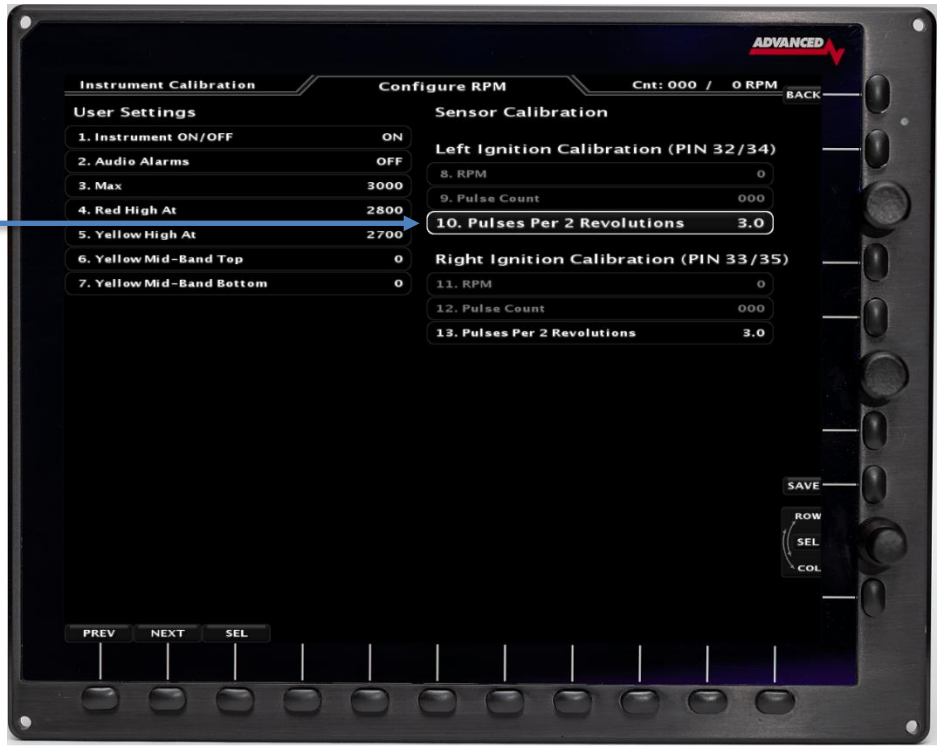
Pulses Per 2 Revolutions: The system needs to know how many pulses the RPM input will see in two propeller rotations. The following data should help select the correct number to use.

Standard RPM sensor with Slick Mag 4 Cylinders: Pulses = 2

Standard RPM sensor with Slick Mag 6 Cylinders: Pulses = 3
Electronic Ignition 4 Cylinders: Pulses = 4

Electronic Ignition 6 Cylinders: Pulses = 6

The EFIS lets you select a different Pulses Per 2 Revolutions for each ignition.



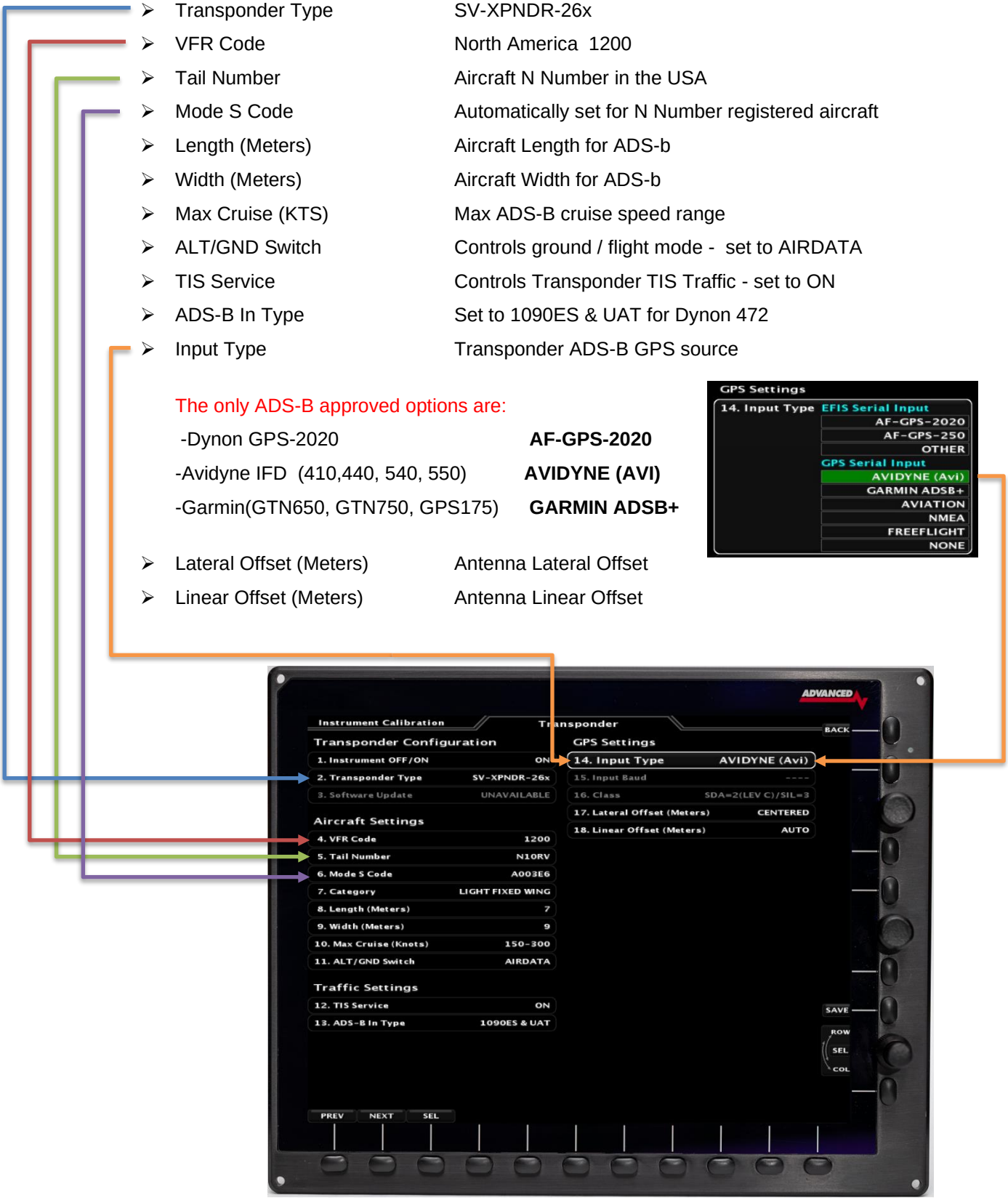
- Verify that all transponder settings are correct in both EFIS screens, including aircraft N Number

➢ Transponder Type	SV-XPNDR-26x
➢ VFR Code	North America 1200
➢ Tail Number	Aircraft N Number in the USA
➢ Mode S Code	Automatically set for N Number registered aircraft
➢ Length (Meters)	Aircraft Length for ADS-b
➢ Width (Meters)	Aircraft Width for ADS-b
➢ Max Cruise (KTS)	Max ADS-B cruise speed range
➢ ALT/GND Switch	Controls ground / flight mode - set to AIRDATA
➢ TIS Service	Controls Transponder TIS Traffic - set to ON
➢ ADS-B In Type	Set to 1090ES & UAT for Dynon 472
➢ Input Type	Transponder ADS-B GPS source

The only ADS-B approved options are:

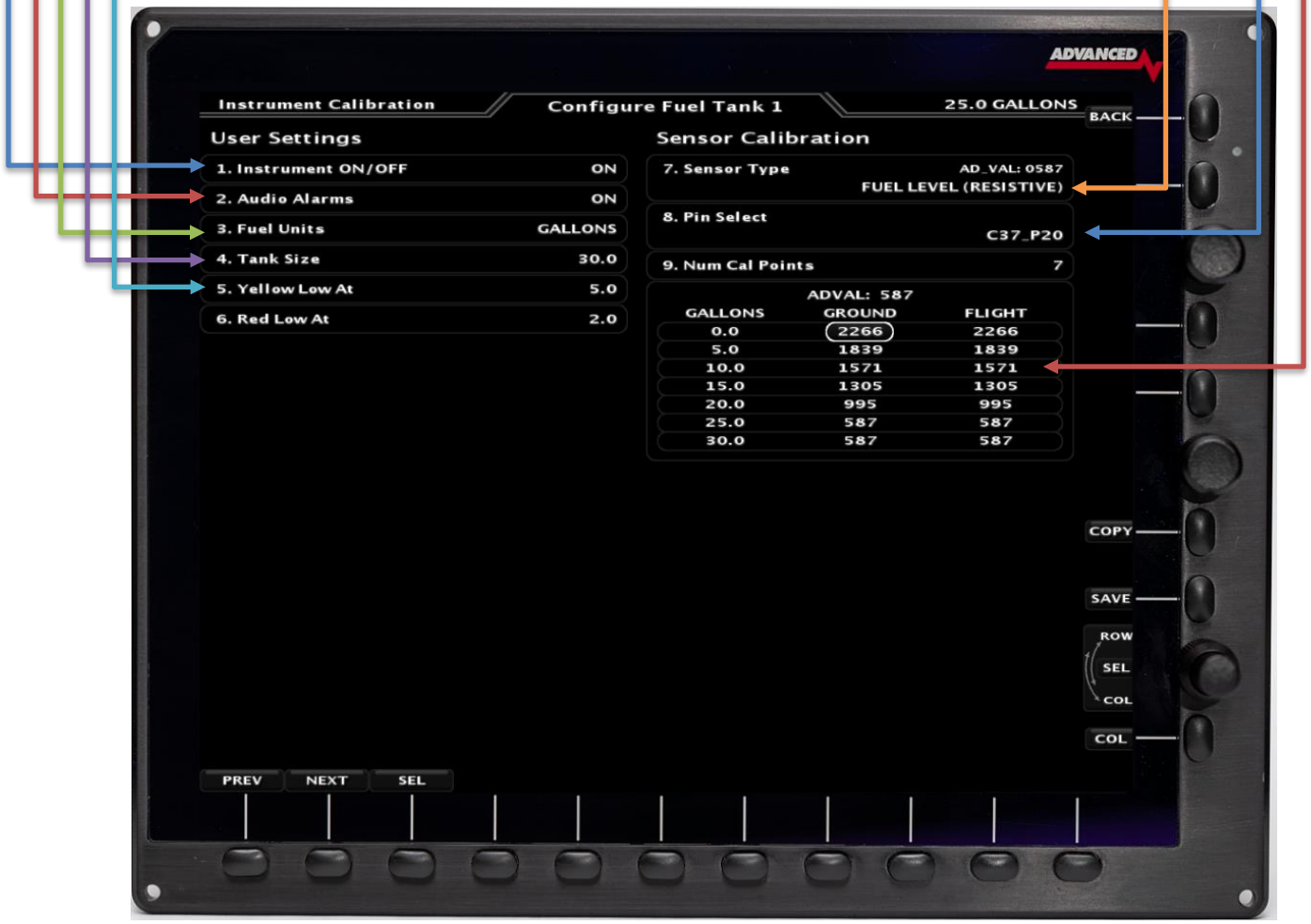
-Dynon GPS-2020	**AF-GPS-2020**
-Avidyne IFD (410,440, 540, 550)	**AVIDYNE (AVI)**
-Garmin(GTN650, GTN750, GPS175)	**GARMIN ADSB+**

➢ Lateral Offset (Meters)	Antenna Lateral Offset
➢ Linear Offset (Meters)	Antenna Linear Offset



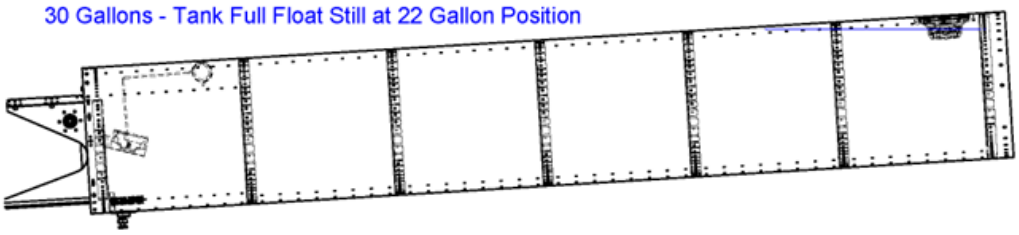
- Calibrate and verify the Fuel Tank sensors.

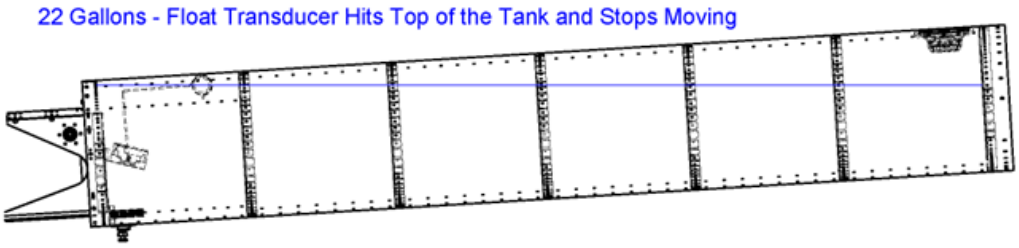
  - Select Instrument ON or OFF All the unused fuel tank gauges should be configured to OFF
  - Select Audio Alarms ON
  - Select Tank Units (Gallons or Liters)
  - Set Tank Size
  - Set Yellow Low value
  - Set Red Low value
  - Select tank sending unit type (Float or Capacitance)
  - Verify correct SV-EMS pin is selected.
  - Calibrate Fuel Tank using the instructions on the following pages.

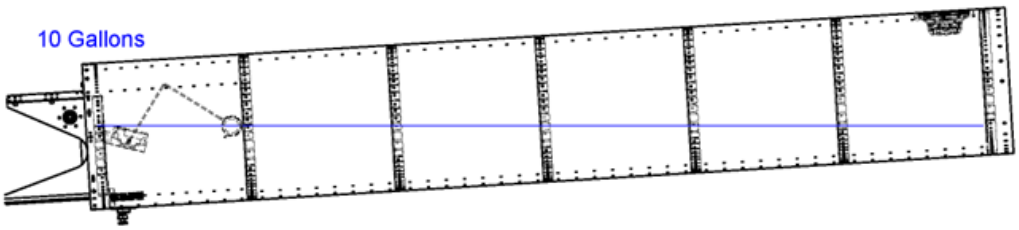


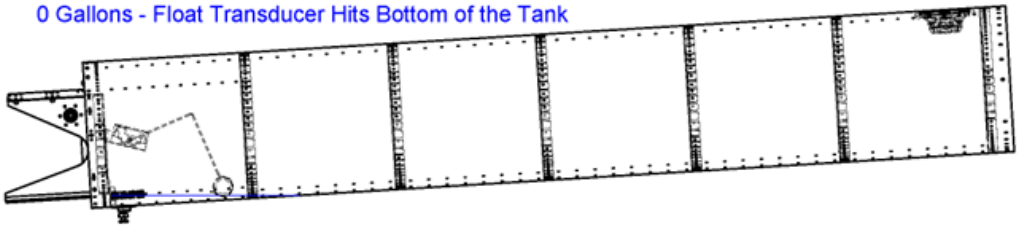
The AF-6600 / AF-5000 EFIS stores two sets of calibration numbers for each tank. It uses the ground calibration numbers when the Airspeed is less than 30kts. The flight calibration numbers are used when the airspeed is greater than 30kts. This feature enables the fuel gauges to read correct on the ground for a tail-wheel equipped airplane. If the aircraft does not have a tail-wheel set the ground and flight data to the same calibration number.

It is important to understand that fuel level measurements are subject to the physical limitations of the sensor. Depending on your fuel tank and sensor geometry, there may be some immeasurable fuel at one or both ends of the fuel level sensors' range. The end result is that you may experience fuel readings at "full" that are numerically less than the physical capacity of the tanks, and in this case you may also see no apparent change in fuel level readings when the sensor is maxed out on the full side. Similarly, on the empty side, you may see a zero quantity indication before the tank is truly empty if the sensor has reached the bottom of its travel or measuring capability when the tank still in fact has fuel in it. Most fuel tank sensors are mounted in the root of the wing. ***If your wing has dihedral, it is common for the fuel tank sensor to stop reading the fuel level at around 2/3 of a tank.***









Steps To Calibrate a Fuel Tank:

1. Select Instrument Calibration mode on the Pilot PFD EFIS, verify that all EFIS screens are powered on in the aircraft. Use the lower knob to scroll to Tank 1 (Left Main), Tank 2 (Right Main), Tank 3 Left Aux, or Tank 4 Right Aux.

2. Verify the Tank is Empty.

3. Enter the max size of the Tank in the Tank Size field.

4. Set the Audio On/Off Setting. If this is set to ON, an Audio warning will sound if the fuel level is below the Red Low At setting.

5. Set the Instrument On/Off Setting. If this is set to ON the tank will be displayed.

6. Enter the number of calibration points; it must have at least two points. Four points could be used (zero, ¼, ½, ¾, Full) or one point for every 2 gallons. **Every calibration point must be different from the previous value until the tank sensor cannot detect a change in the fuel level. Tank sensor values must never reverse direction.**

7. Use the lower knob to scroll down to the tank calibration data. The calibration data is displayed in columns, one for ground and one for flight. Use the lower knob to switch between ground and flight data columns. The current ADVAL (digital value of the transducer) reading for the tank is displayed at the top of the table.

8. Starting at 0 Gallons press the [**COPY**] button or use the knob to record the current ADVAL to the correct fuel amount and attitude (ground or flight).

9. Add fuel (at increments decided on) and then record the new ADVAL by pressing **[COPY]**

10. Fill and record a reading for each attitude (ground and flight). If it is a tail wheel aircraft, the best way to do this is to record the ground data then lift the tail and record the flight data after the fuel reading has settled. Repeat this for each increment until the tank is full.

11. Press the [**SAVE**] button to save the data to permanent memory and [**BACK**] to exit Tank Calibration.

12. After completing Tank 1, move on to Tank 2 and follow the same procedure. If Aux Tanks are present, follow this procedure for Tank 3 & 4.

13. **IF THE AIRCRAFT DOES NOT HAVE AUX TANKS, TURN TANKS 3 & 4 OFF!**

CAUTION: Do not turn off power before pressing the save button and exiting the calibration menu.

Calibration Tips:

When lifting the tail you should set it on something, so the level you lift it to will be consistent. You should also wait until the reading stops changing before setting it.

Fuel tank sensors are not accurate when the tank is near full. Once you notice the reading not changing much or not corresponding with the rest of the readings during calibration the last few entries in the fuel calibration data should be set to the same value.

If the tanks do not consistently show full, lower the digital value for the tank full data.

The fuel gauge will only show the digital fuel amount for the highest reading that the float changed with a plus sign indicating that the correct fuel amount is not known but is over the last reading. The analog gauge will show full for the last changing reading. It is normal for an 18-gallon tank to show 16+ when it is full. This indicates that the float stopped changing at 16 gallons and this is the highest fuel reading that can be detected by the float in the tank.

Valid Tank calibration values.

Values do not reverse direction and the sensor stopped detecting fuel changes at 25 gallons.

- Get a Pitot/Static and Transponder Test before the first flight.

Background

Dynon Avionics SV-ADAHRS-200/201 use airspeed in the calculation of attitude (or GPS ground speed when airspeed is unavailable). The internal rate sensors are monitored and calibrated in flight using feedback from the accelerometers and from airspeed to achieve a highly accurate attitude solution.

When a pitot or static test is performed the sensors in the SV-ADAHRS-200/201 are being exposed to dynamics that are impossible to achieve in a real aircraft flight environment, namely, large airspeed changes without the accompanying accelerations and rotations. This false condition will cause a well-calibrated unit to incorrectly adjust its calibration. Furthermore, when a unit is in a test situation a change in applied pitot or static pressure will cause the attitude to pitch up or down. This is expected.

The AF-6600/AF-5000 EFIS contains a special mode that allows you to perform required altimeter and/or airspeed checks without affecting the calibration of the attitude-sensing components.

Pitot/Static Test Instructions

This test must be used when performing pitot/static, transponder, or other tests that manipulate either the pitot or static pressures. You

Before conducting any pitot/static testing, follow these guidelines:

1. The aircraft itself should be temperature stable. For example, if the aircraft is moved from outside in the sun to a hangar for testing, tests should not be started until the airplane has stabilized at the hangar temperature.

2. Transponders and ADS-B OUT systems operating under test conditions transmit specific information about the aircraft, including position and altitude data. These tests frequently involve a check of the aircraft's altimetry system in which air pressure is induced into the pitot static system to simulate operation at various altitudes. In cases where transmission lines are not attached directly to test equipment, ***antenna shielding must be used to prevent propagation of test signals*** with potential to interfere with ATC operations or TCAS-equipped aircraft operating in the area.

3. Turn AF-5000 on and let it warm up until the altitude reading is stabilized. This period should be at least 5 minutes, but may take longer depending on environmental conditions.
   Connect your Pitot/Static Test Set to the aircrafts Pitot and Static ports. You will need to cover the two Dynon Pitot Tube drain holes on the bottom of the Pitot Tube.

4. To enter the Altitude Test mode select: SET > CAL > 12. Altitude Menu on the EFIS. Both the active and standby ADAHRS (if equipped) are shown to allow a single test to calibrated multiple ADAHRS. The altitude values shown in this mode are the same as you would encounter while in-flight with a Baro setting of 29.92 . They are not adjusted or otherwise altered from their normal readings and behaviors.

5. Set Airspeed to stable constant airspeed on your Pitot/Static Test Unit, we usually use 65 knots.

6. Set Altitude Climb rate to a value of +/- 2000 fpm on your Pitot/Static Test Unit.

7. Perform a standard leak check on the Pitot/Static system before testing the required altitudes.

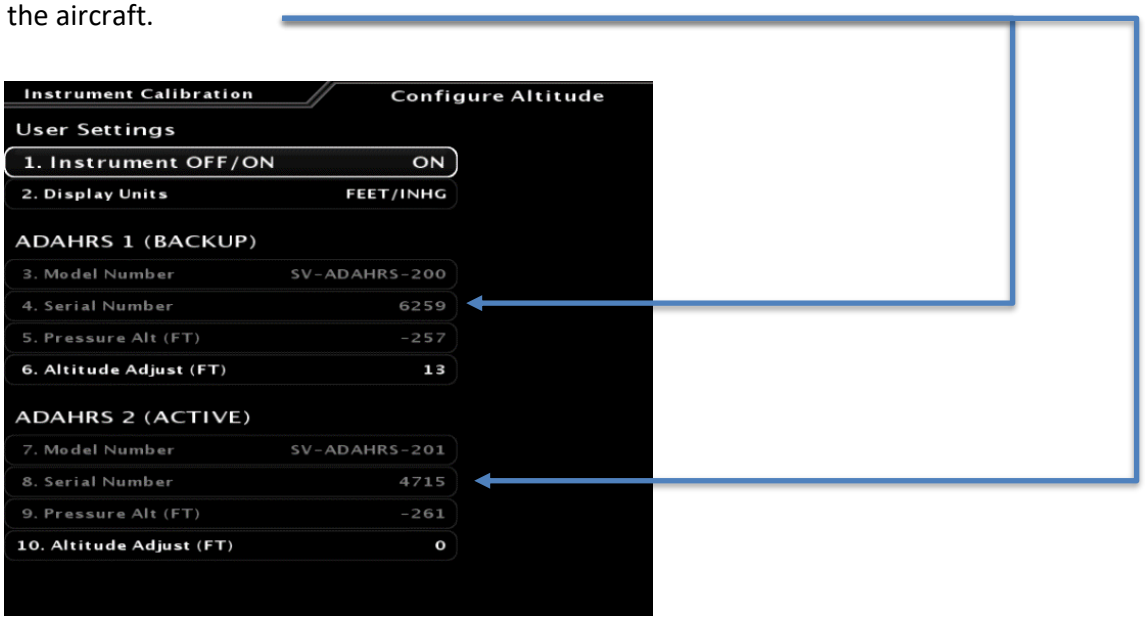
8. Set each required Altitude on your Pitot/Static Test unit and verify the altitude is within acceptable limits on each ADAHRS.

ALTITUDE ADJUST: There is a single point altitude adjustment for each ADAHRS that can be used to adjust the barometric altimeter from the AHRS if it is not in tolerance. This adjustment affects both the displayed altitude and the altitude sent to other devices.

Verifying Altitude

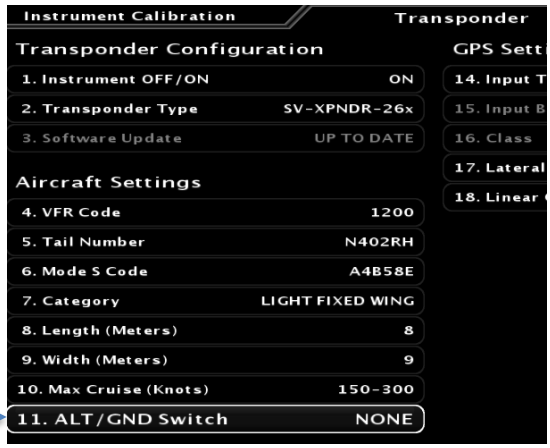
You can check the altitude from the Altitude Calibration Menu: SET > CAL > 12. Altitude Menu

The Configure Altitude Menu will display the non baro adjusted (29.92) altitude from each Adahrs in the aircraft.



Manual ALT / GND mode switching

Transponder checks require manual switching to ALT and GND mode. A Dynon Avionics SV-XPNDR-261/262 is normally configured to automatically switch between GND and ALT mode based on airspeed and other parameters. You can change the ALT/GND Switch to NONE so that you can turn on the Transponder ALT mode while on the ground.



Note: Before changing AUTO ALT/GND, record which squat switch configuration is set; you will need this information to restore AUTO ALT/GND to this setting after transponder testing is complete.

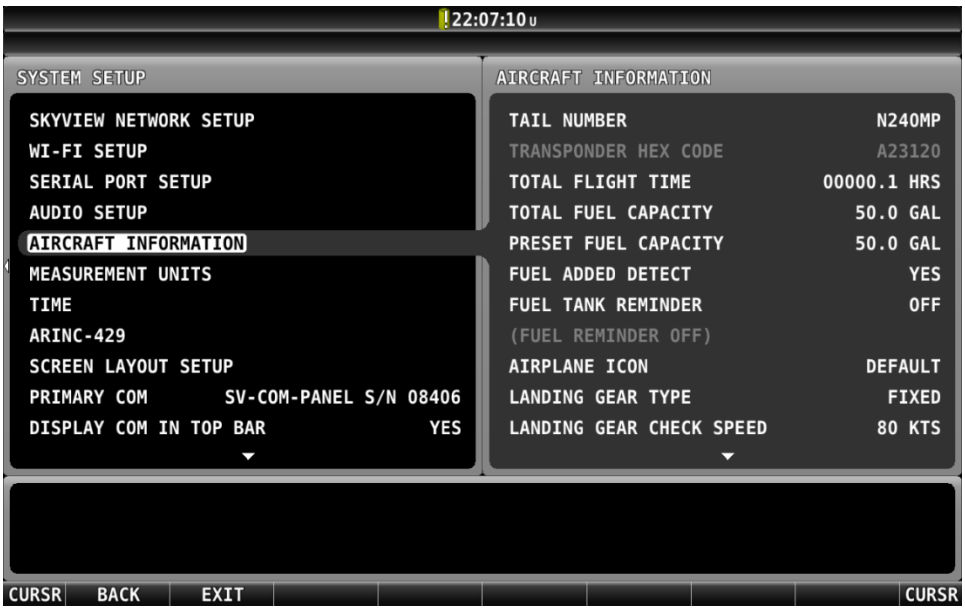
Pitot/Static Test Chart

Altitude - feet	Pressure	Tolerance ±(feet)	ADAHRS 200	ADAHRS 201	Backup EFIS
−1,000	31.018	20			
0	29.921	20			
500	29.385	20			
1,000	28.856	20			
1,500	28.335	25			
2,000	27.821	30			
3,000	26.817	30			
4,000	25.842	35			
6,000	23.978	40			
8,000	22.225	60			
10,000	20.577	80			
12,000	19.029	90			
14,000	17.577	100			
16,000	16.216	110			
18,000	14.942	120			
20,000	13.75	130			
22,000	12.636	140			
25,000	11.104	155			

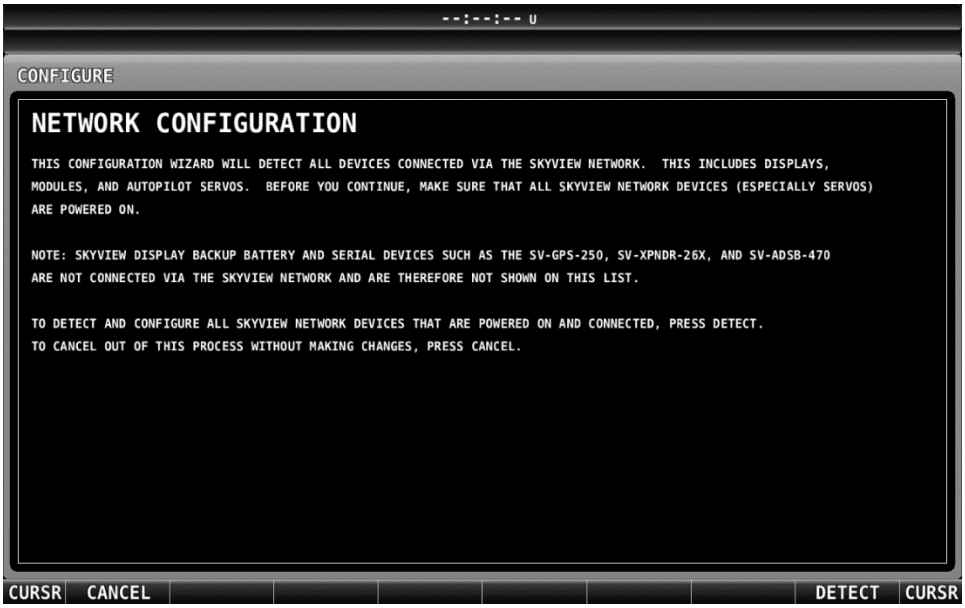
Airspeed (kts)		Tolerance ±(feet)	ADAHRS 200	ADAHRS 201	Backup EFIS
20					
25					
40					
50					
75					
100					
125					
150					
175					

Skyview HDX EFIS Software Configuration (Must be done before first engine start and flight)

- ***Verify that your HDX screens are running software version 15.4 or newer, update if needed.***
- Enter the EFIS instrument calibration menu by holding down the right two buttons on the PFD
- Enter Aircraft Information: Tail Number, Total Fuel Capacity, …

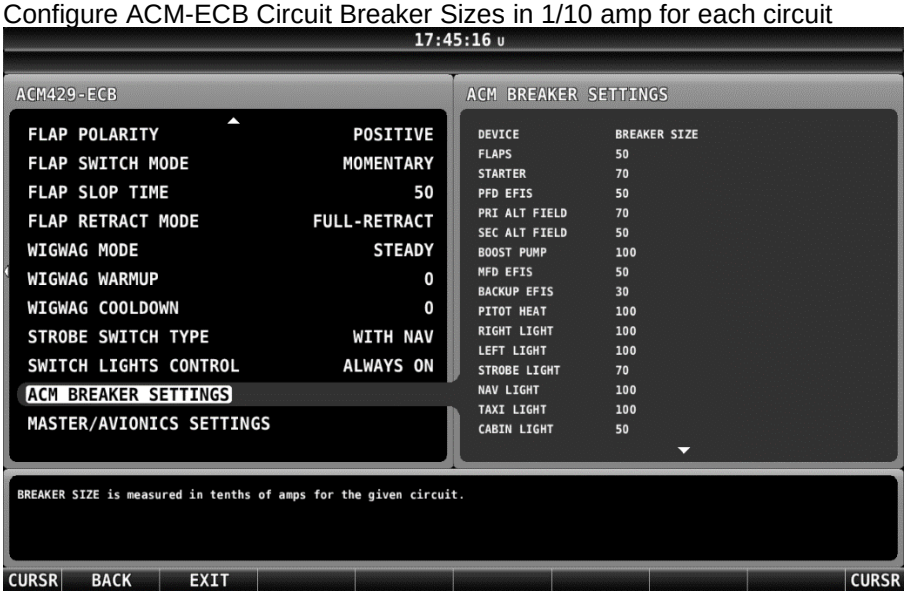


- Scan for Network devices by pressing the DETECT button in SKYVIEW NETWORK SETUP



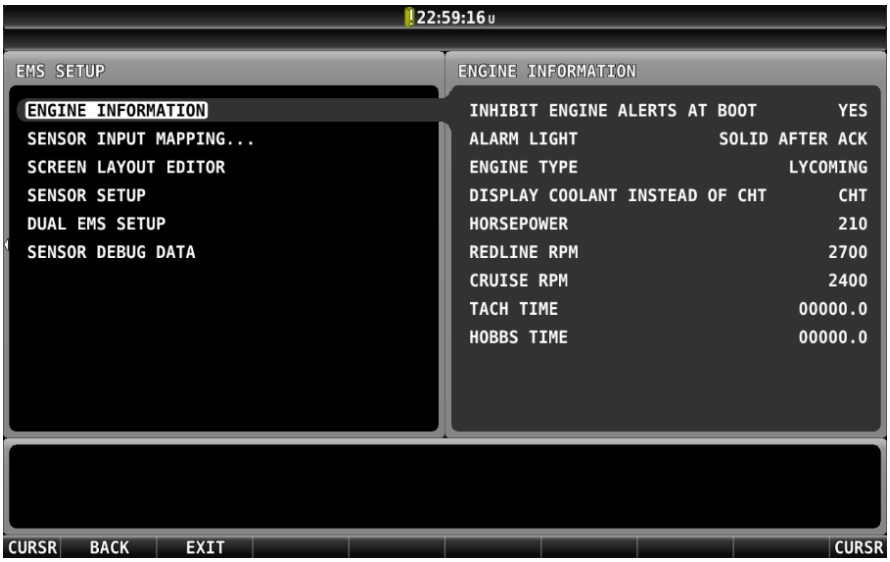
- Configure ACM SETUP

- Configure ACM-ECB Circuit Breaker Sizes in 1/10 amp for each circuit



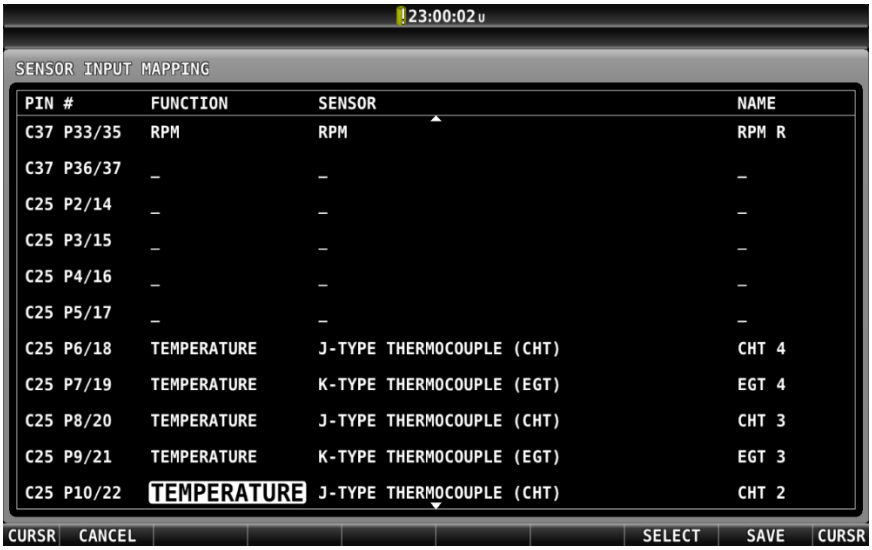
- Configure SV-EMS from the EMS Setup page to match your engine sensors.

- Configure Engine Information



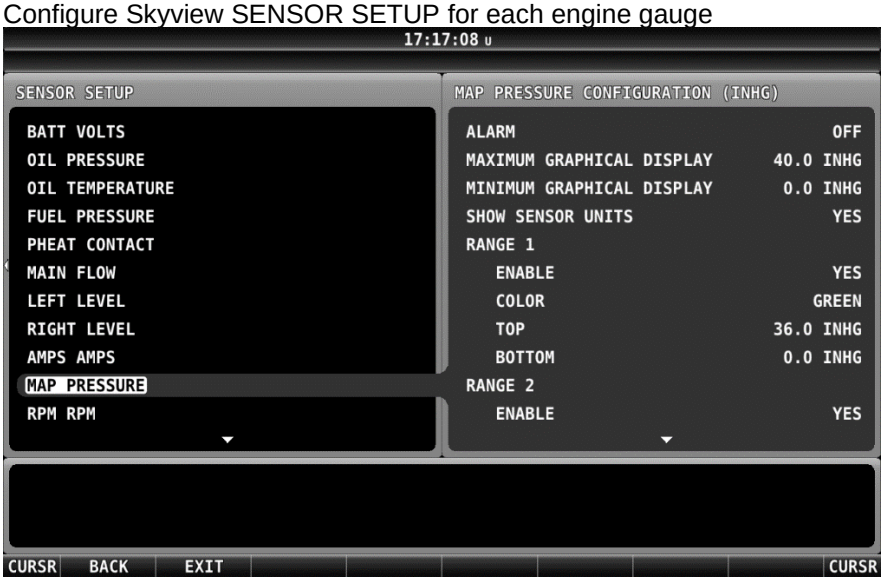
- Configure SV-EMS Sensor Input Mapping to match your engine sensor wiring

*The Flaps, Aileron and Elevator Trim do not use the SV-EMS inputs



- Configure SV-EMS C25 Pins for CHT and EGT Probes

- Configure Skyview SENSOR SETUP for each engine gauge



- Configure Skyview Serial Ports

  Serial Port 1 : Advanced CTRL Module

  Serial Port 2 : NMEA 9600 OUT for ELT Data

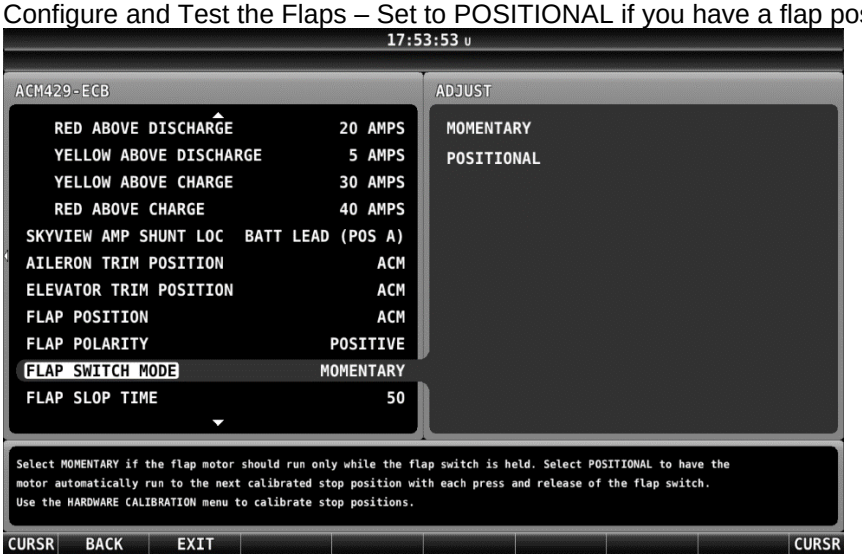
  Serial Port 3 : SV-XPNDR-261

Serial Port 4 : SV-ADSB-472

Serial Port 5 : SV-GPS-250 or SV-GPS-2020

- Calibrate Trim Positions

- Configure and Test the Flaps – Set to POSITIONAL if you have a flap position sensor.

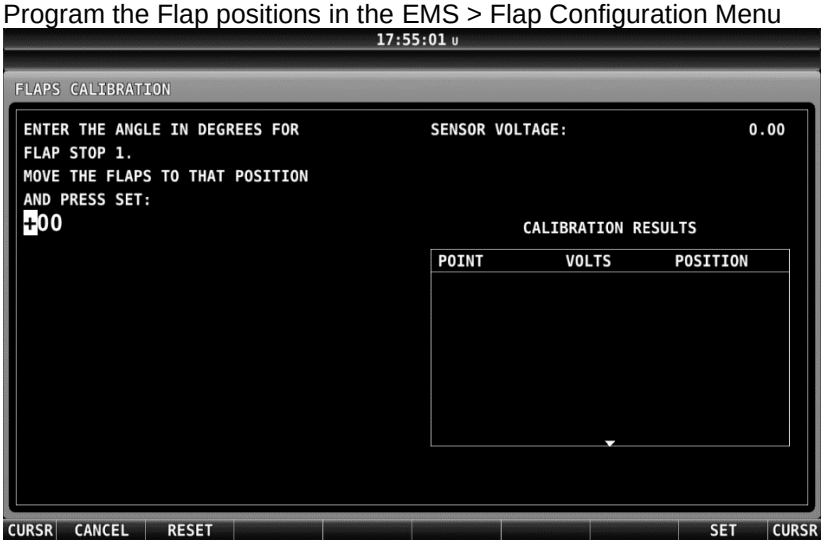


a. Verify that the flaps run in the correct direction using the Flaps Up and Down Buttons on the ELECTRICAL Page. If they are backwards swap the motor leads or use the Reverse Polarity setting in setup menu.

b. Verify that the flaps run in the correct direction using the panel mounted flap switch or Stick Grip buttons. ***If they are backwards you MUST Swap the wires to the flap switch or buttons.***

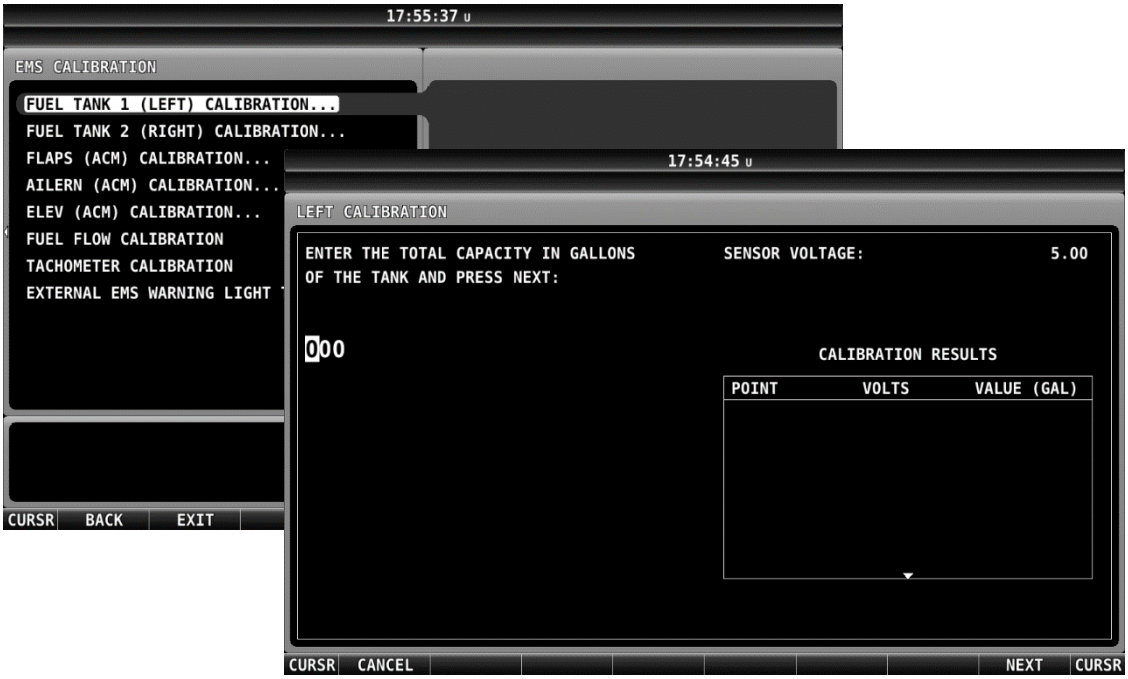
c. Verify that the Flap position value changes in the Setup > Flaps menu when you move the flaps.

d. Program the Flap positions in the EMS > Flap Configuration Menu



e. Verify that the flaps stop at the correct locations.

- Calibrate Autopilot servos
- Test Autopilot servos
- Calibrate and verify the Fuel Tank sensors.



- Verify that both EFIS screens are getting ADAHRS and Engine Data

- Get a Pitot/Static and Transponder Test before the first flight.

First Engine Start

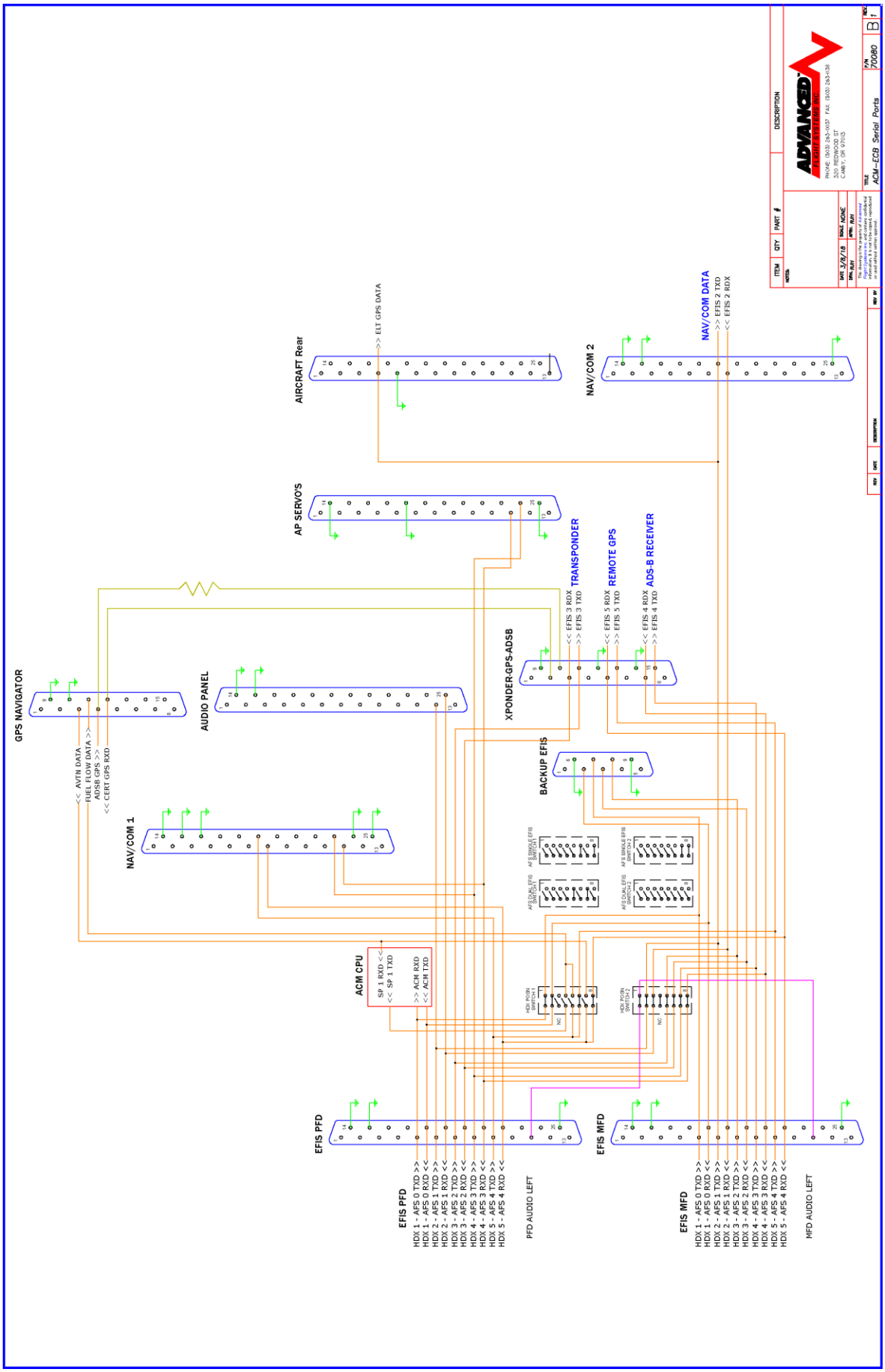
- With relay protection diodes installed, your EFIS screens can be turned on before the engine is started.
- After the engine has started, verify oil pressure and temperature. If none is indicated **SHUT DOWN,** the engine. Verify all wiring and consult your local A&P, the engine manufacturer, and/or AFS technical support.
- Verify all engine indications are correct per your **engine manufacturers** manual.

Before First Flight

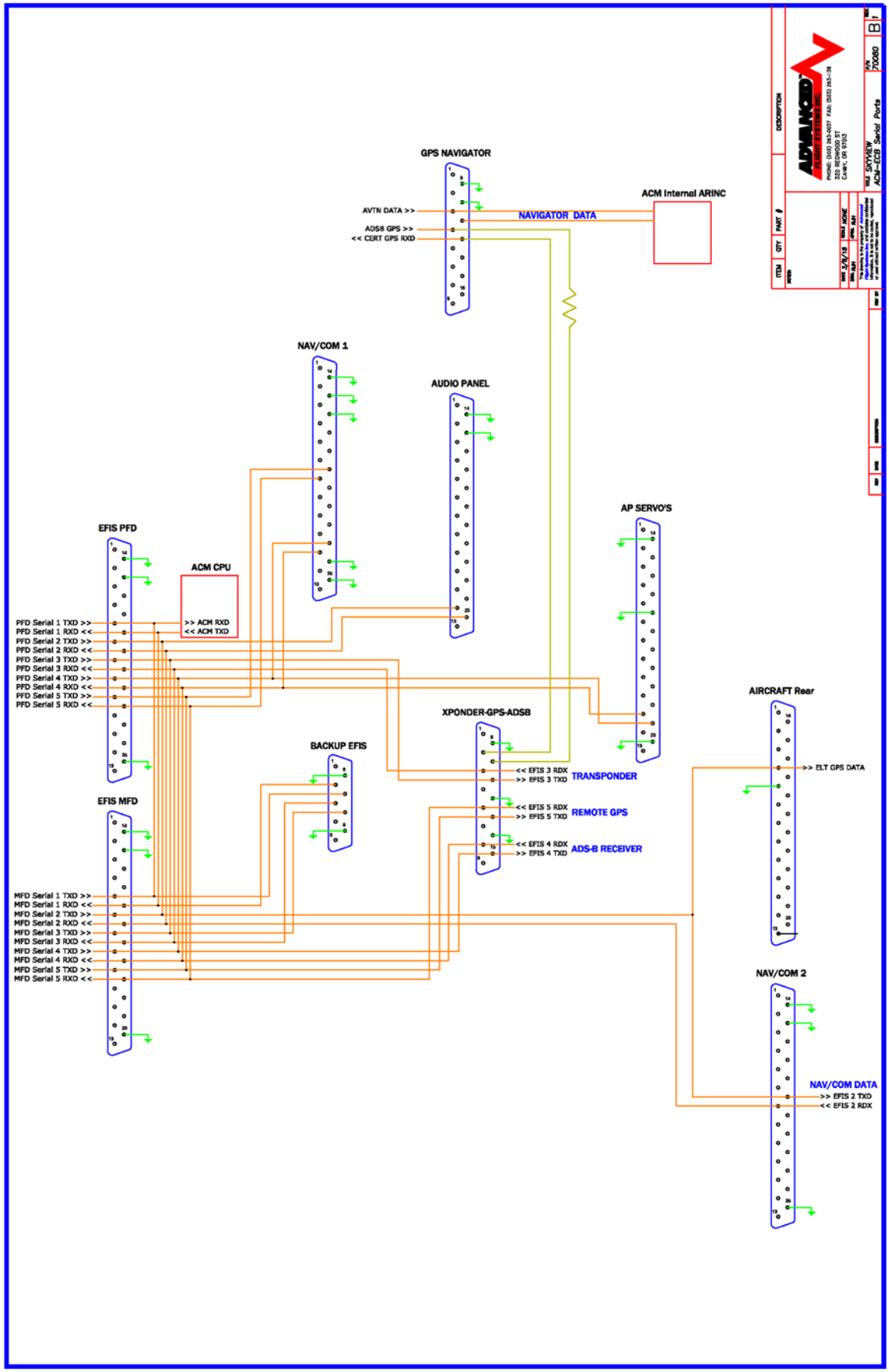
- Verify you have the latest system software and mapping data (if applicable) - Visit the Dynon/AFS Website for latest software and map data
- Weight & Balance page updated with **your** aircrafts data
- Checklist pages updated with information from your **aircraft manufacturer**
- Magnetometer ADAHRS Alignment completed
- Pitot/Static check completed from an authorized FAA Repair Station.
- **Verify that both aircraft ignition system are properly wired and functioning**
- **Verify that Aircraft fuel system (Flow Meter, Pressure Transducer) is properly plumbed and not leaking.**
- **Perform a minimum fuel flow test and verify each tanks unusable fuel quantity.**

Verify that the RPM, Oil Pressure, Fuel Pressure, Fuel Flow, Manifold Pressure, Oil Temperature, CHT and EGT temperatures are correct and reasonable during a high-power run-up. Never take-off with high temperatures or abnormal readings.

ACM-EFIS RS-232 Serial Port Mapping AF-5000



ACM-EFIS RS-232 Serial Port Mapping Skyview



Advanced IFR with IFD540

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		GARMIN G5	ADAHRS DATA from G5
1	PDA360 Audio Panel		ACK ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detect Option
3	GTR/GNC-2xx	IFD Tuning	SV-ADSB-47X	
4	AVTN/RNAV		SV-GPS-250/2020	

Advanced RV-10 3 Screen IFD540

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		IFD-ADSB	Send ADSB to IFD
1	PDA360 Audio Panel		ACK ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detector
3	GTR/GNC-2xx	IFD Tuning	SV-ADSB-47X	AFS-ADSB
4	AVTN/RNAV		SV-GPS-250	

Skyview Serial Ports

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
1	ACM-ECB		ACM-ECB	
2	NMEA 9600		NMEA 9600	ELT Signal
3	TRANSPONDER		TRANSPONDER	
4	ADS-B		ADS-B	
5	SV-GPS-250 *GPS-220		SV-GPS-250 *GPS-2020	

Advanced IFR with GTN-650

Serial Port	EFIS PFD	NOTES	EFIS MFD	NOTES
0	ACM-ECB		NMEA 9600	D6 GPS Signal
1	PDA360 Audio Panel		ELT/SL30	
2	74109 AFS XPNDR		*CO	CO Detect Option
3	NONE		74112 AFS-ADSB	
4	AVTN/FADC1		SV-GPS-250 *GPS-2020	

IFR Panel ACM Fuse Sizes

LABEL	SIZE	DESCRIPTION
LEFT LT	**10**	Left Landing Light
STROBE	**7.5**	Strobe Lights
NAV LT	**10**	Nav Lights
RIGHT LT	**10**	Right Landing Light
PITOT H	**10**	Pitot Heat
TRIM	**2**	Trim Motors
FLAPS	**5**	Flap Motor
ALT FLD	**5**	Alternator Field Power
BOOST P	**10**	Boost Pump
STARTER	**7.5**	Starter contactor
AUX PWR	**5**	Auxiliary power plug (ACM-FUSE: Cabin Light, Fans, Aux Plug)
AUTO P	**5**	Autopilot Servos
NAV 2		Nav 2 Radio
COM 2	**5**	Com 2 Radio
XPONDER	**3**	Transponder and ADS-B Power
AUDIO P	**3**	Remote Audio Panel Power
BACKUP	**3-5**	Dynon D6 EFIS, ELT, CO Detector (5 AMP for AF-5000/HDX)
NAV 1	**7.5**	Navigator NAV Power
COM 1	**10**	Navigator Com Power
MFD	**5**	Copilot EFIS Screen
CHARGE	**10**	TCW Battery, Charge and Pass through power
PFD	**5**	Pilot EFIS Screen

VFR Panel Fuse Sizes

LABEL	SIZE	DESCRIPTION
LEFT LT	**10**	Left Landing Light
STROBE	**7.5**	Strobe Lights
NAV LT	**10**	Nav Lights
RIGHT LT	**10**	Right Landing Light
PITOT H	**10**	Pitot Heat
TRIM	**2**	Trim Motors
FLAPS	**5**	Flap Motor
ALT FLD	**5**	Alternator Field Power
BOOST P	**10**	Boost Pump
STARTER	**7.5**	Starter contactor
AUX PWR	**5**	Auxiliary power plug (ACM-FUSE: Cabin Light, Fans, Aux Plug)
AUTO P	**5**	Autopilot Servos
NAV 2	**3**	Nav 2 Radio
COM 2	**5**	Com 2 Radio
XPONDER	**3**	Transponder and ADS-B Power
AUDIO P	**2**	Intercom
BACKUP	**3**	Backup EFIS
NAV 1	**3**	Nav 1 Radio
COM 1	**5**	Com 1 Radio
MFD	**5**	Copilot EFIS Screen
CHARGE	**10**	TCW Battery, Charge and Pass through power
PFD	**5**	Pilot EFIS Screen

AF-6600 / AF-5000 Panel Configuration Checklist

(Completed by AFS before panel shipment)

N Number:_____ Customer:_____

Aircraft:_____ Tank Size:_____ INJ or Carb:_____

Verify Fuse or Circuit Breaker Sizes

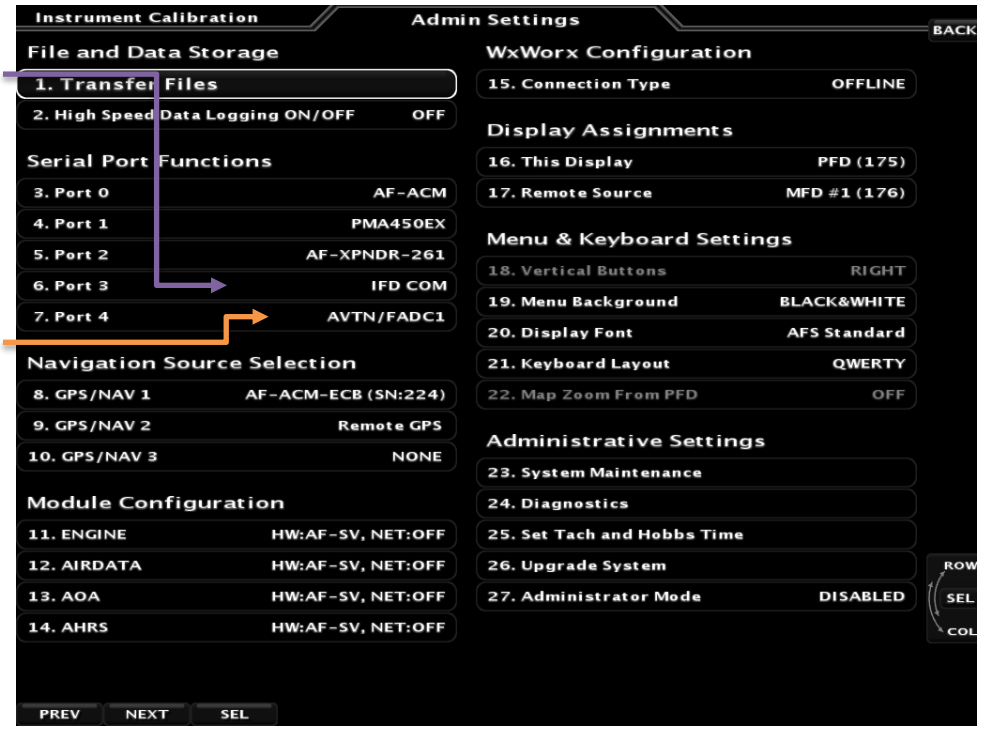
1. Verify ELT Panel Battery (green sticker with date)
2. Configure EFIS ADMIN Settings

DUAL EFIS SCREEN IFR Panel Settings

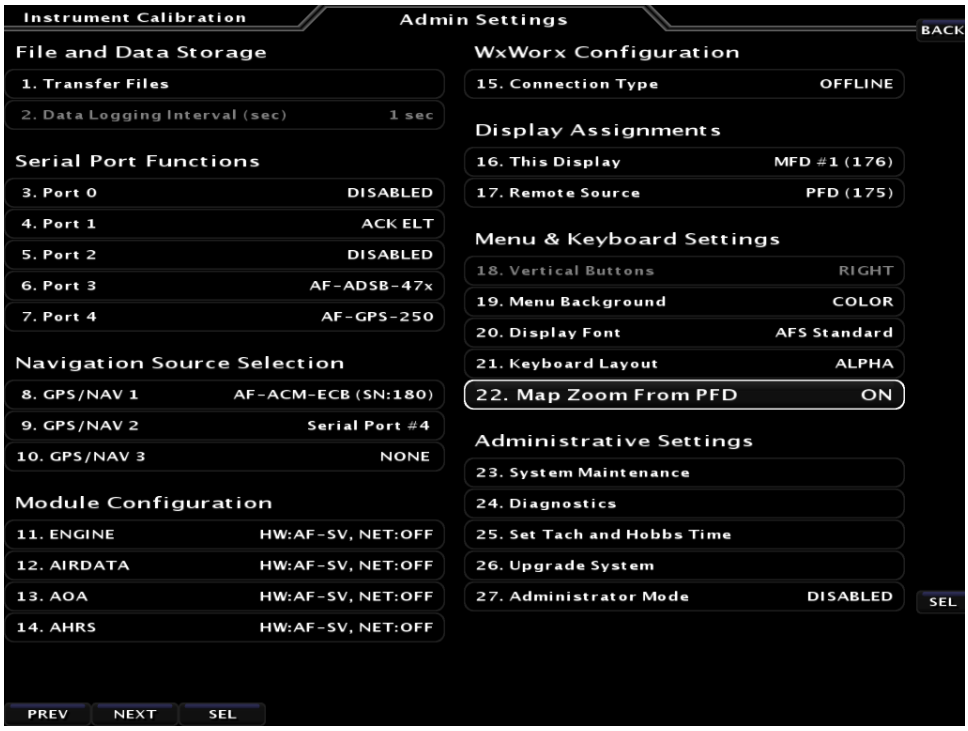
PFD

IFD Radio Tuning

Fuel Data to IFD/GTN

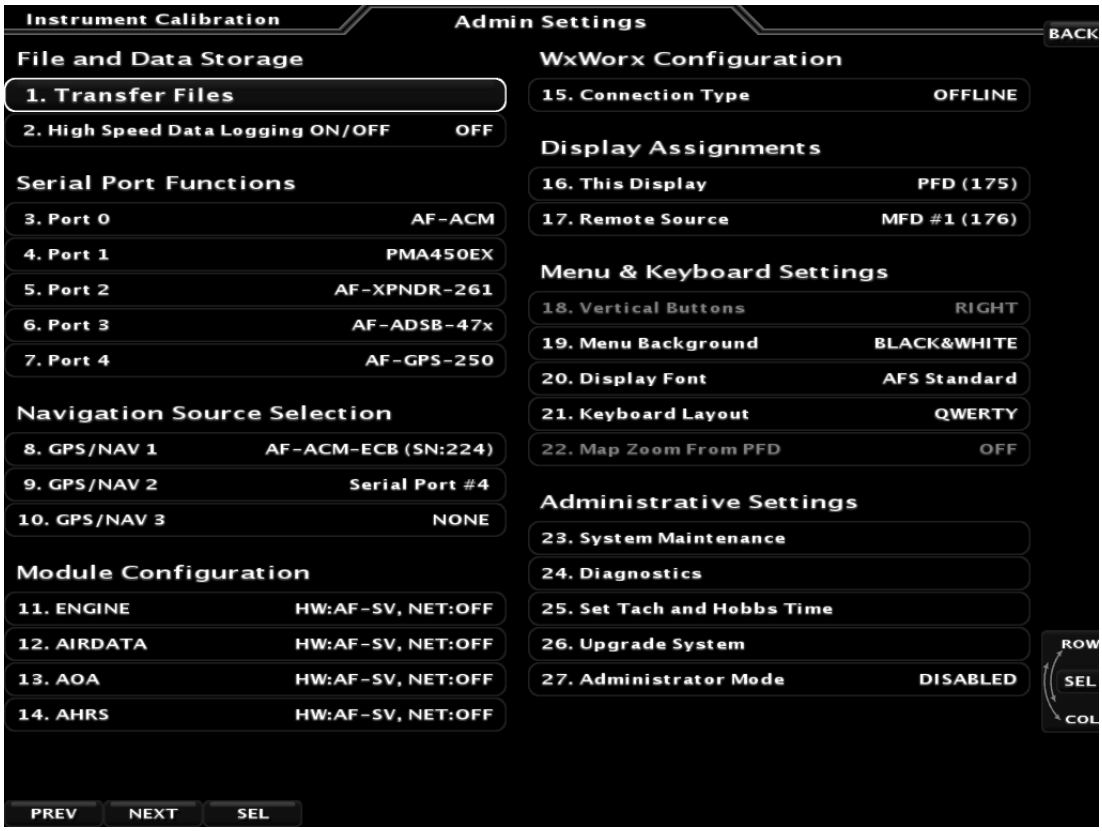


MFD



SINGLE EFIS SCREEN IFR Panel Settings

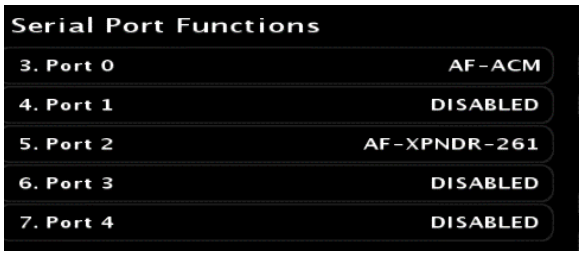
PFD

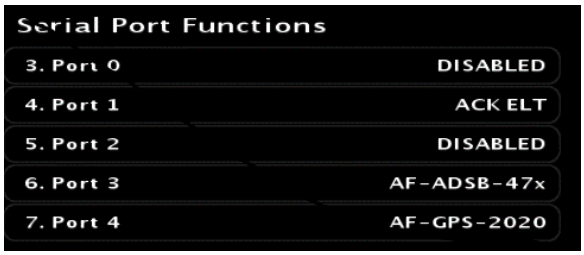


DUAL SCREEN VFR Settings

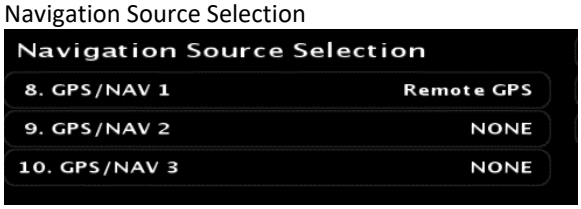
PFD **MFD** .

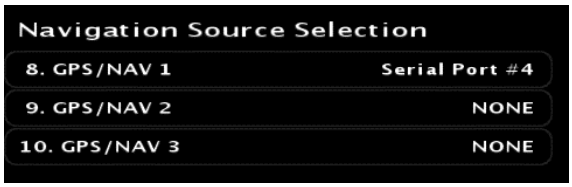
Serial Ports Functions



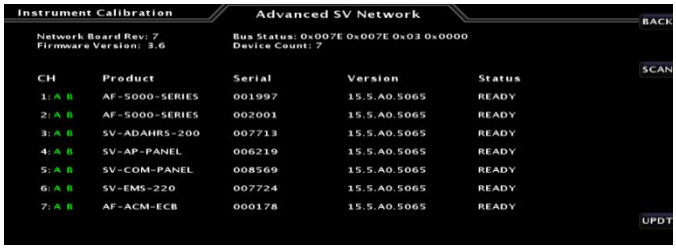


Navigation Source Selection

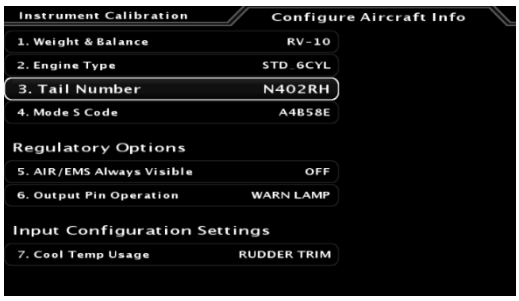




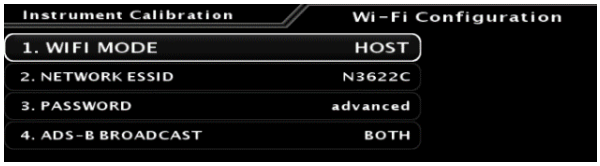
3. SV Network Configuration. Press **SCAN** and verify that all attached SV-Network devices are detected. Press **UPDT** to load the current software in all devices. Channel A and B should be green for all devices.



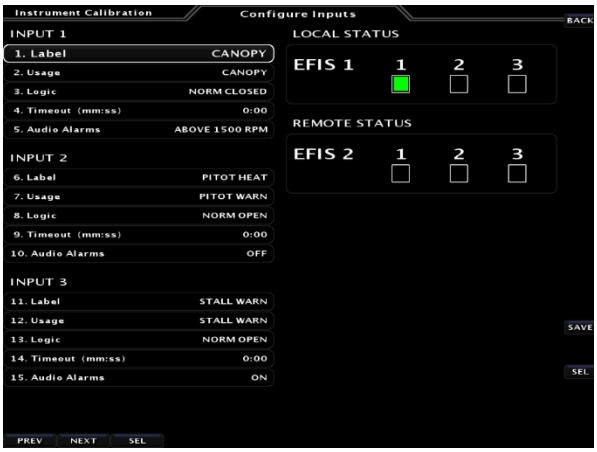
4. Configure Aircraft Info



5. Verify that the Wi-Fi module is installed in MFD and configure Wi-Fi Settings on MFD Screen. Set the NETWORK ESSID to the aircraft N Number.



6. Configure PFD EFIS Inputs if RV-14 (Canopy, Pitot Heat, Stall Warning Tab)



7. Configure Test Audio to 75 and verify that EFIS audio warnings are playing in headset.

8. Configure Autopilot Settings

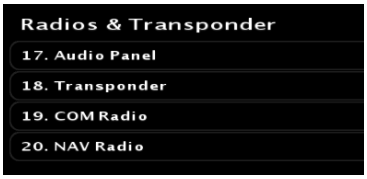
9. Configure Yaw Damper settings if present.

10. Verify Altitude Settings

11. Configure Airspeed Settings for aircraft

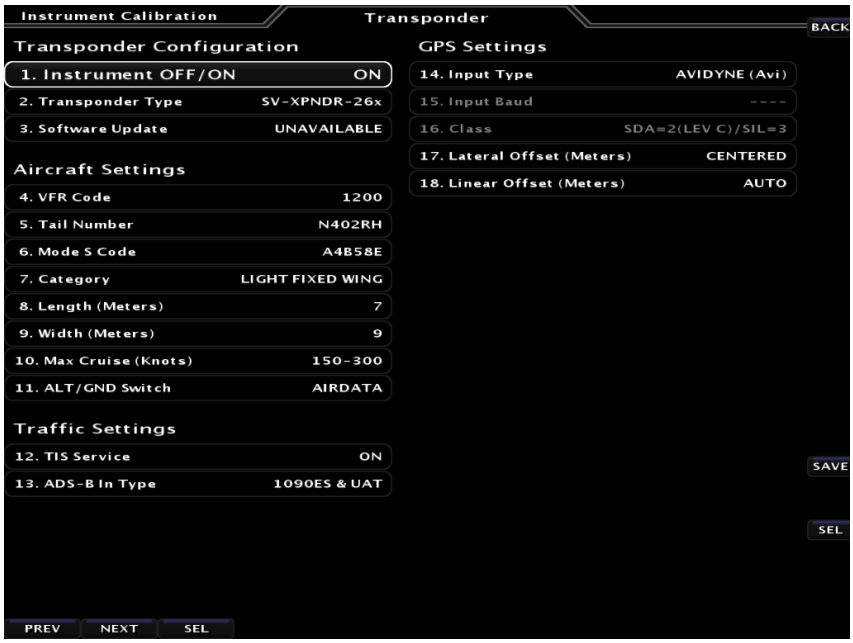
12. Configure AoA Settings for aircraft

Radios & Transponder Settings



17. Configure Audio Panel Settings on PFD and MFD to PDA360

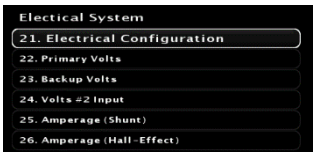
18. Configure Transponder Settings on PFD and MFD
    -Tail Number
    -Length
    -Width
    -Max Cruise
    -ALT/GND Switch
    -ADS-B In Type
    -GPS Input Type



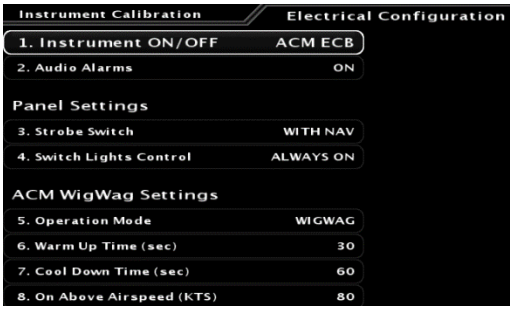
19. Configure Com Radio Setup on PFD and MFD
    Primary S/N (from SV-NET Scan)
    Radio Type SV-COM
    Squelch 70
    Side Tone 25
    Mic Gain 50

20. NAV Radio Configuration DISABLED

Electrical System Settings



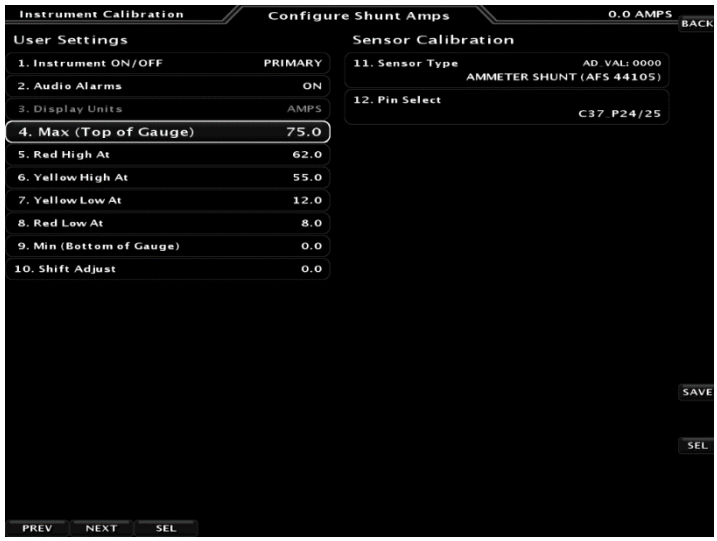
21. **Configure Electrical System for ACM-ECB**



The ACM-ECB configuration is what controls how the panel switches operate.

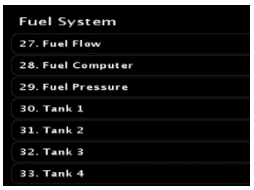
2. Audio Alarms — Turns on ACM audio warnings
3. Strobe Switch — Three Position Strobe/Nav or separate switches.
4. Switch Lights — Controls Backlite always ON or turn on with NAV switch
5. Operation Mode — Landing Lights with WIGWAG
6. Warm Up Time — Time delay in seconds before landing lights start to flash
7. Cool Down Time — Time delay in seconds after landing lights are turned OFF before they can be turned back ON.
8. On Above Airspeed — Above this Airspeed (Knots) the landing lights will flash when the Panel switch is in the **PULSE** mode. Below this airspeed they will remain ON.

22. Configure Primary Volts — Settings for the EFIS Primary Volt Meter
23. Configure Backup Volts — Settings for the EFIS Backup Volt Meter. When enabled the Backup Voltmeter splits the volt meter bar to display both voltages.
24. Configure Amperage (Shunt)

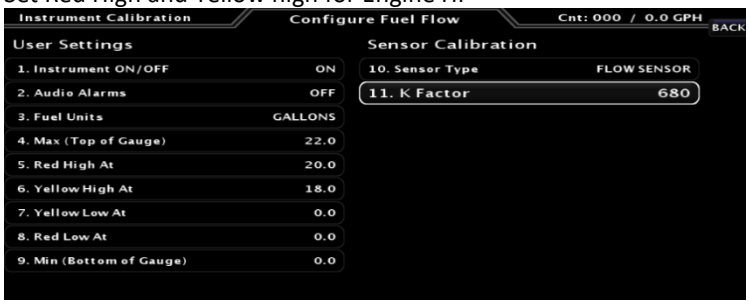


25. Configure Amperage (Hall-effect) EFIS Amp meter display settings from the optional shunt transducer.

Fuel System Settings



27. Verify Fuel Flow Settings
    Set Red High and Yellow high for Engine HP

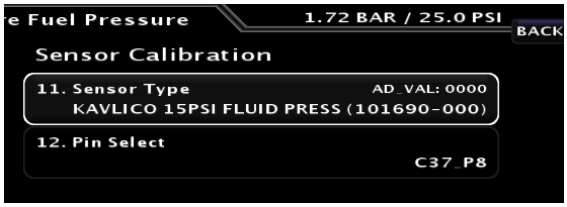


28. Verify Fuel Computer settings

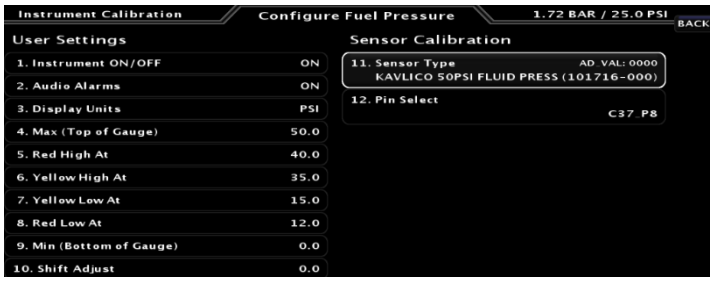
29. Configure Fuel Pressure Sensor and Ranges

Sensor	Carburated 41015 (0-15PSI) Kavlico	Injected 41150 (0-150PSI) Kavlico150
Max	15	40
Red High	10	35
Yellow High	8	30
Yellow Low	3	15
Red Low	2	12
Min	0	0

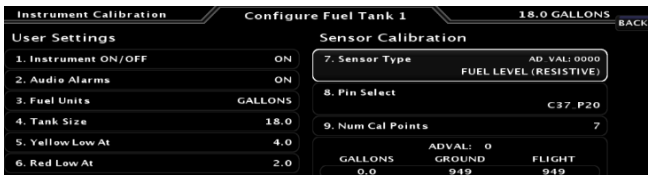
Carb Setting



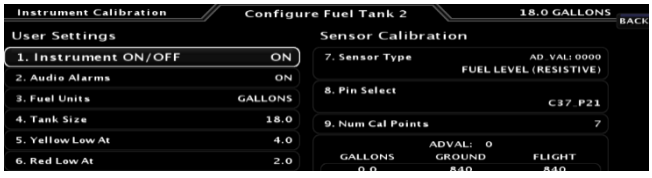
Injected Settings



30. Configure Tank 1

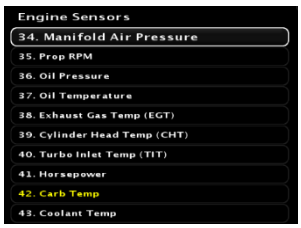


31. Configure Tank 2

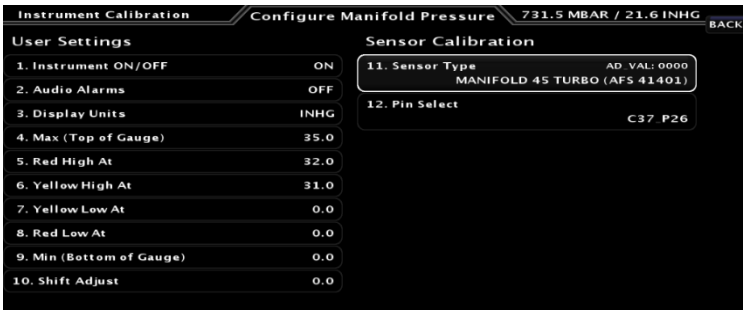


32. Set Tank 3 to Zero Gallons and OFF
33. Set Tank 4 to Zero Gallons and OFF

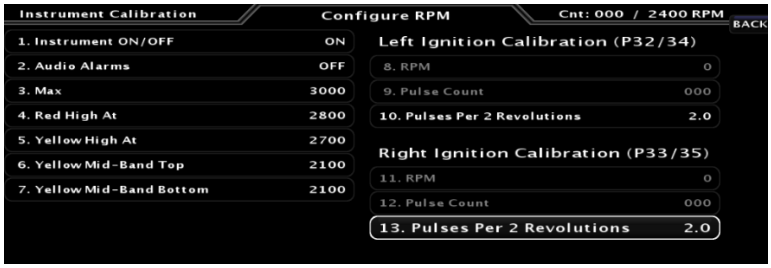
Engine Sensor Settings



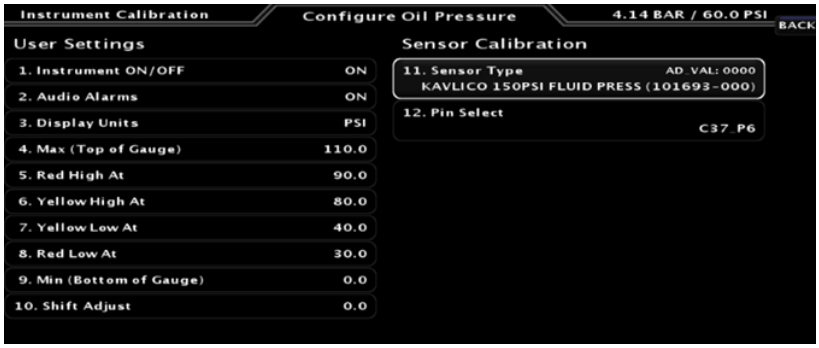
34. Verify Manifold Sensor Configuration



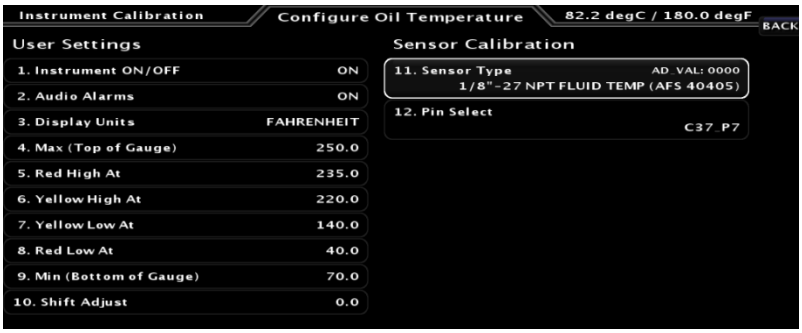
35. Verify RPM set to 2 Pulses for 4 Cylinder and 3 Pulses for 6 Cylinder



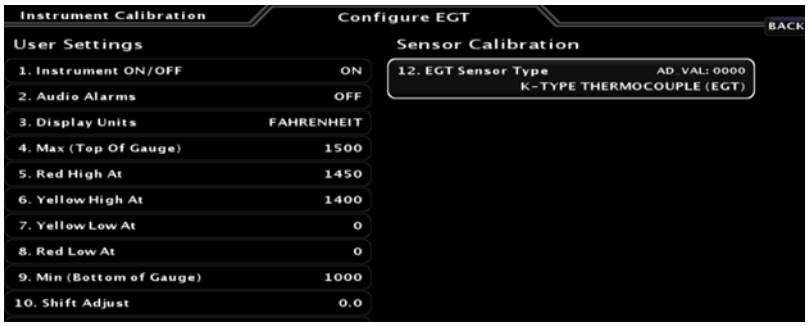
36. Configure Oil Pressure
41101 (0-150) 101693-000 Kavlico



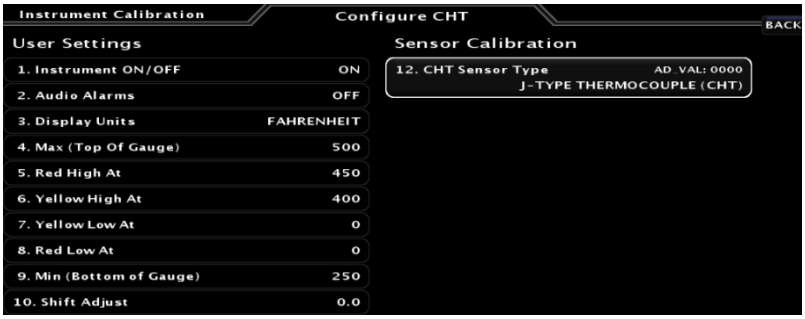
37. Configure Oil Temp 40405 VDO



38. Verify that EGT Sensor Type is K

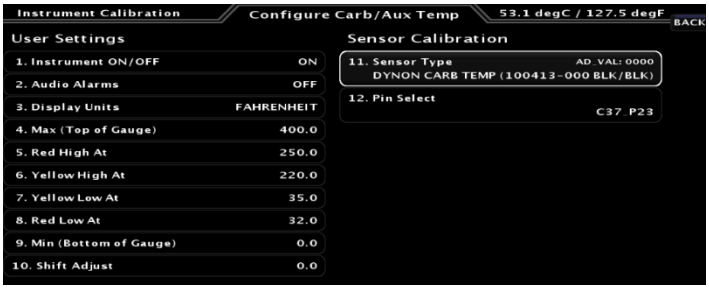


39. Verify that CHT Sensor type is J



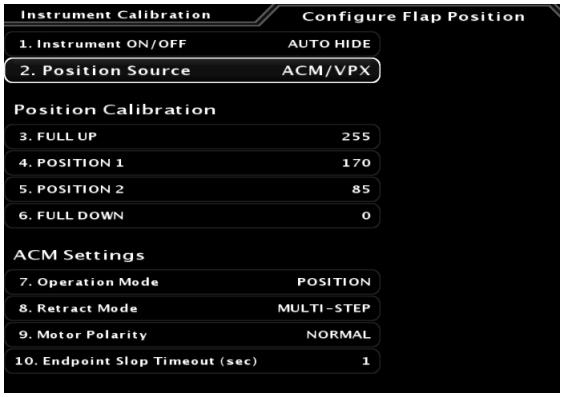
41. Configure HP Engine Type and Horse Power

42. Configure Carb Temp Carb = ON INJ = OFF



Flaps & Trim Settings

44. Configure Flap Position



Operation Mode
The Flaps can be configured for MOMENTARY or POSITION mode if you are using a RayAllen POS12 flap sensor.

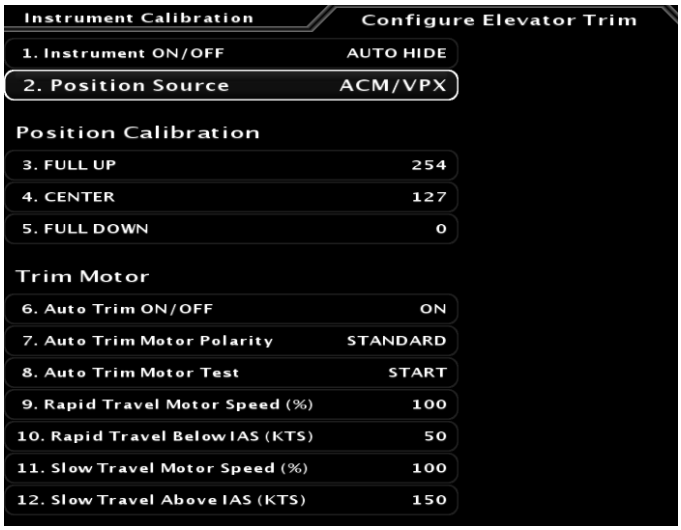
Position Calibration
You can program 4 unique flap positions.

Retract Mode
Selects if the flap move all the way UP or Multi-Step to the programed positions.

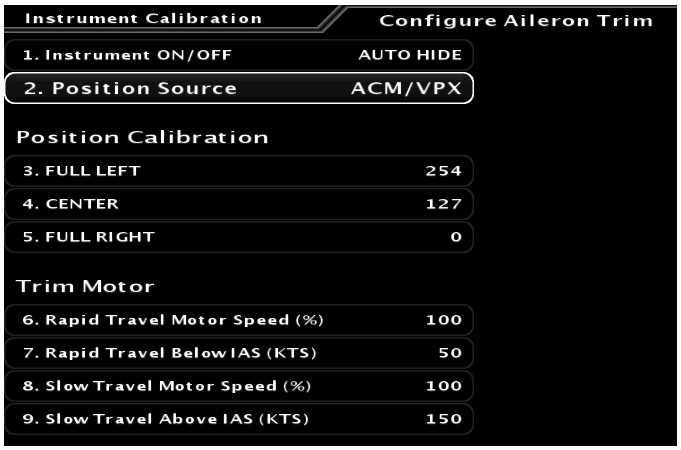
Motor Polarity
Used to change motor direction for the **CHECK** > **ELECTRICAL** > FLAPS > UP / DOWN buttons. ***Do not use this setting to change flap direction from the stick buttons.*** If the ELECTRICAL Page buttons work in the correct direction and the stick buttons are backwards you must swap the push button wiring at the sticks.

Endpoint Slop Timeout
This setting is used to make sure the flaps move up and down all the way in position mode. The flap motor will continue to run for this settings seconds in the UP and DOWN positions.

45. Configure Elevator Trim to ACM



46. Configure Aileron Trim to ACM



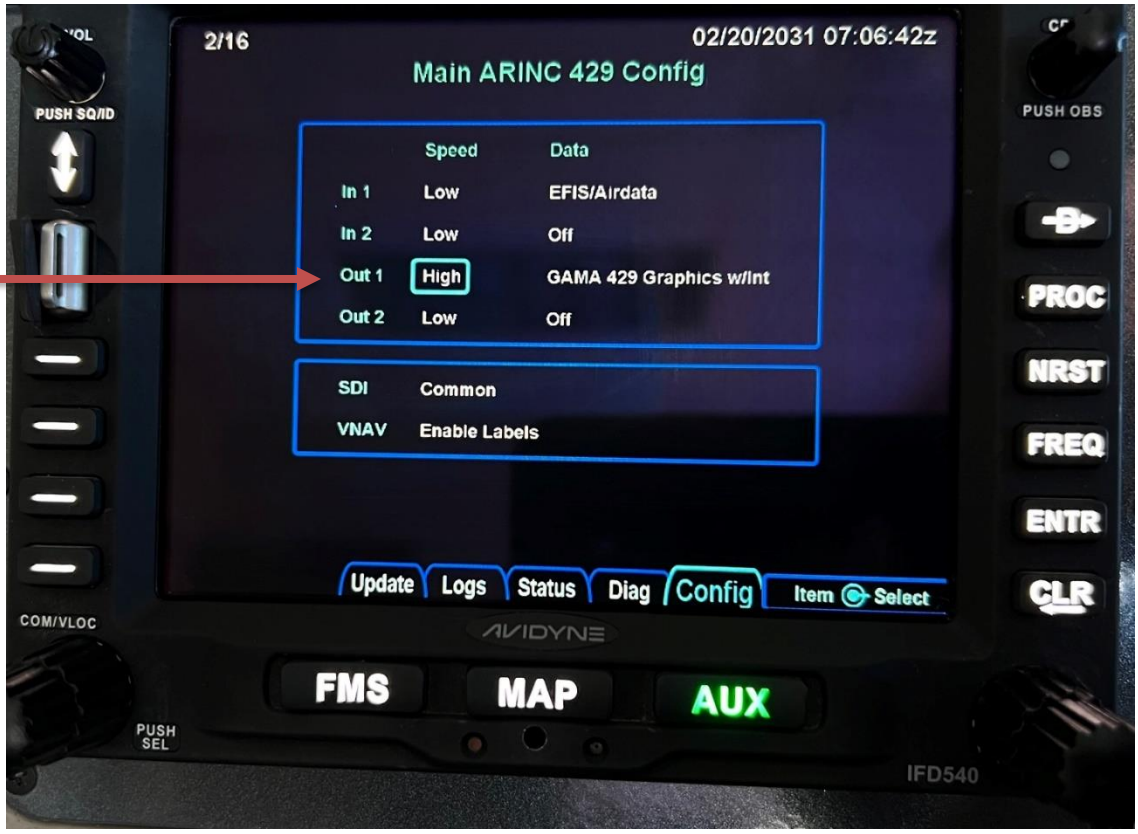
IFD-540/440 Configuration when connected to AF-6600 / AF-5000

USB Slot

To enter configuration mode you will need to power up the IFD with a USB memory stick.

ARINC config with AF-6600 / AF-5000

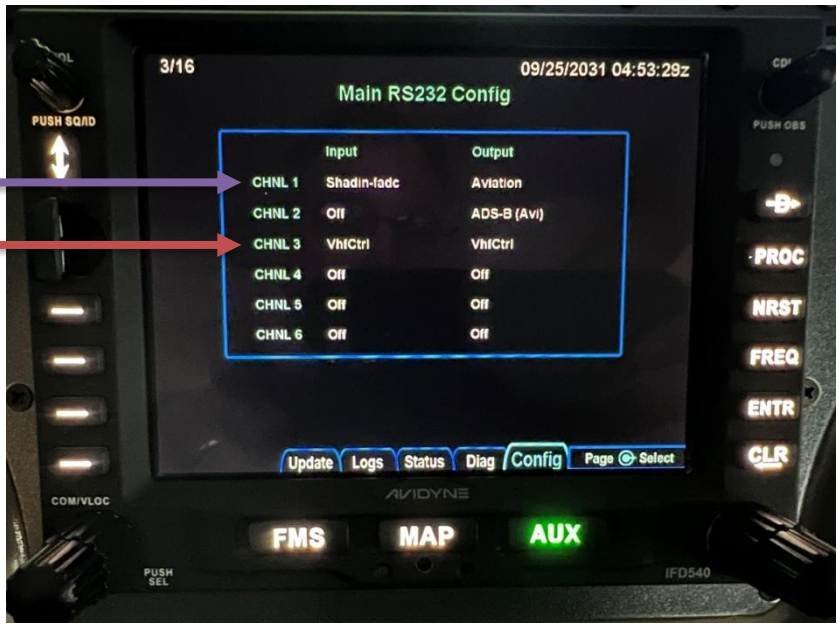
Set Out 1 to HIGH Speed, Set In 1 to Low for AF-5000 / AF-6600

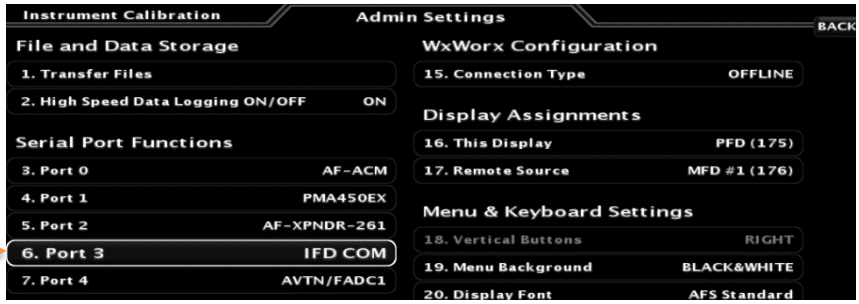


Shadin-fadc Enables fuel range rings on IFD Map, AF-5000 / AF-6600 Only.

AFS EFIS Remote IFD COM Radio Tuning (Requires PFD and MFD EFIS in Panel)

PFD Serial Port 3 must be wired to IFD and configured for IFD COM





VOR / LOC / GS ARINC 429 Config for AF-6600 / AF-5000 ONLY

Set RX to Low and TX to High Speed

OPTIONAL Serial Port Config for IFD ADS-B Weather and Traffic

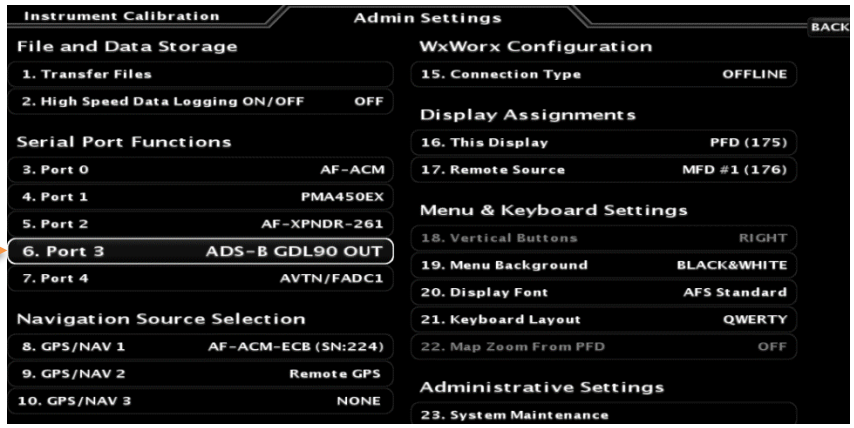
The PFD EFIS serial port #3 is wired through the ACM-ECB to the IFD serial port 3. You can choose to use this serial connection to enable the EFIS to tune the IFD COM radio or have the EFIS send ADS-b data to the IFD.

If you choose to use the serial port connection for ADS-b data you should configure the IFD using the following settings. ***NOTE: The Dynon HDX does not support sending ADS-b data to the IFD***

Shadin-fadc Enables fuel range rings on IFD Map, AF-5000 / AF-6600 Only.

Receive ADS-B data from AFS EFIS (Requires PFD and MFD EFIS in Panel)

PFD Serial Port 3 must be wired to IFD and configured for ADS-B GDL90 Out



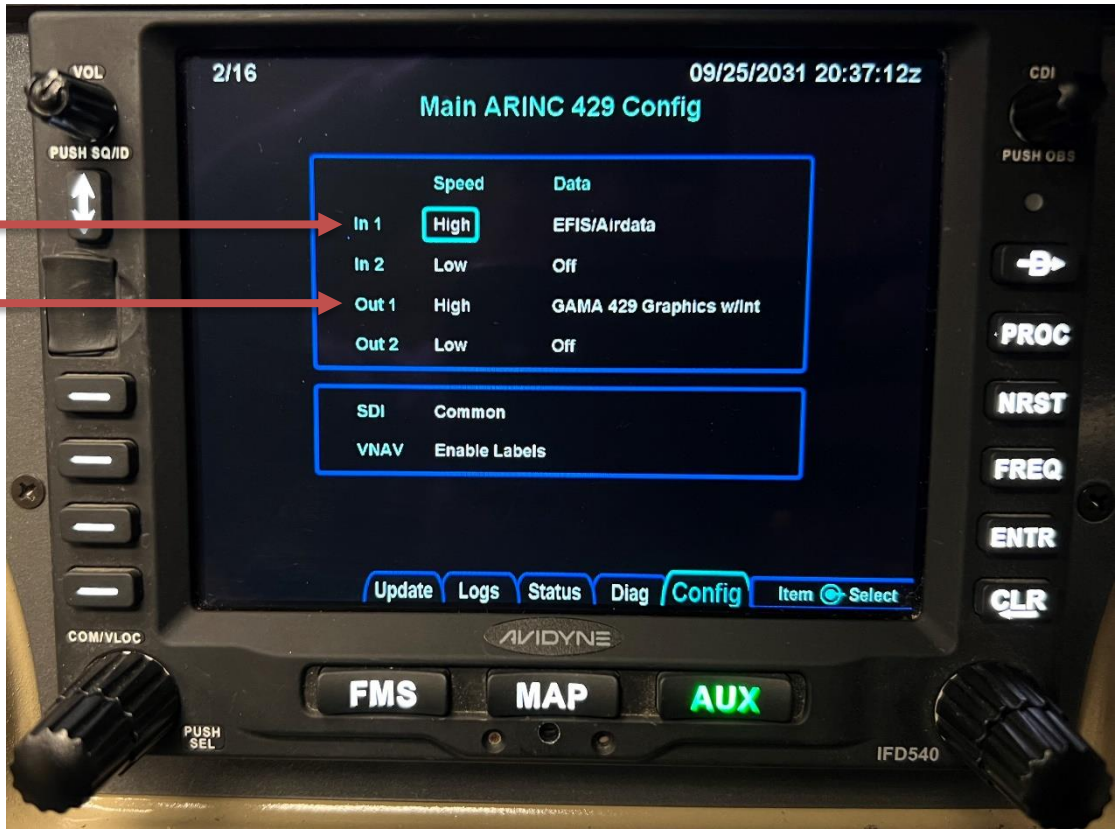
IFD-540/440 Configuration when connected to Dynon HDX or Skyview

USB Slot

To enter configuration mode you will need to power up the IFD with a USB memory stick.

ARINC config with Dynon HDX or Skyview

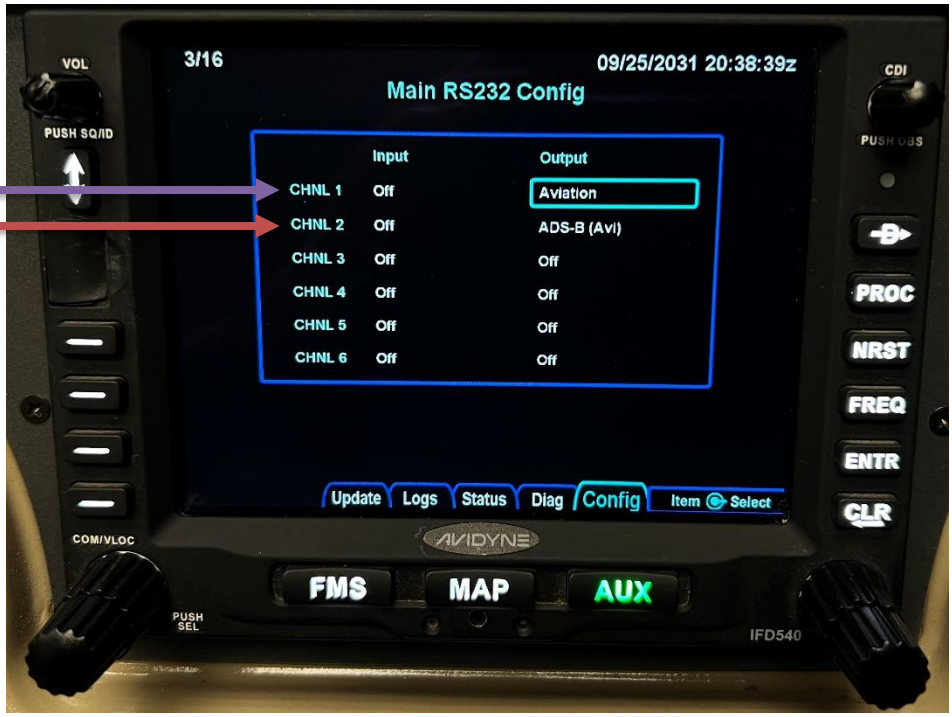
Set In 1 and Out 1 to High Speed



Serial Port Config for Dynon HDX and Skyview

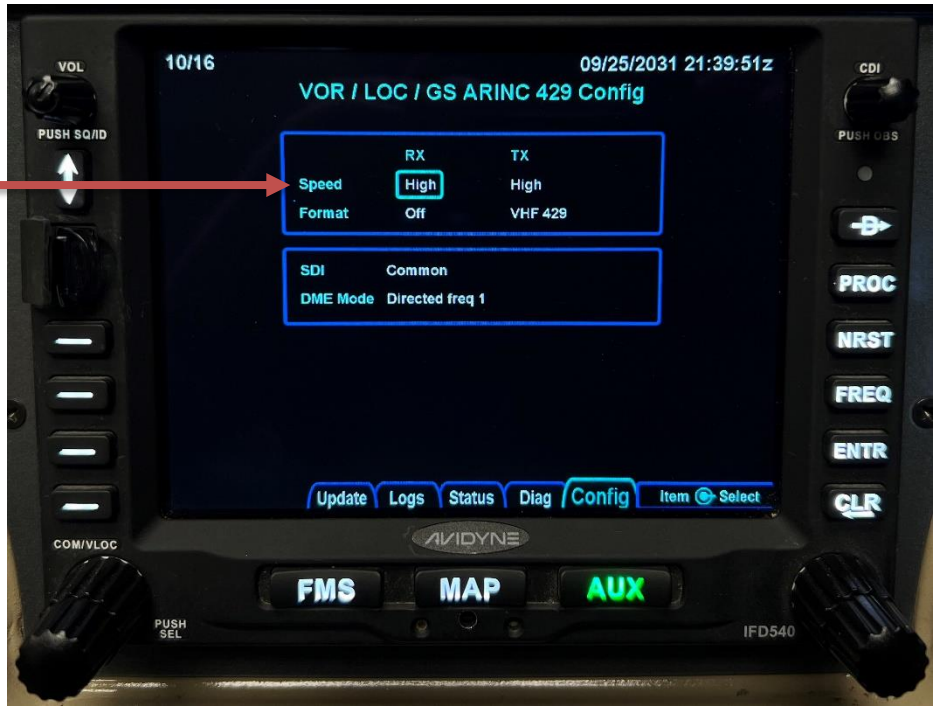
Sends Aviation Data to Dynon EFIS

Sends Certified GPS position data to Transponder



VOR / LOC / GS ARINC 429 Config for Dynon HDX and Skyview

Set RX to High and TX to High Speed



GTN-650xi/750xi Configuration for AF-6600 / AF-5000 Only

The PFD EFIS serial port #3 is wired through the ACM-ECB to the GTN serial port 3. If your panel has a PFD and MFD EFIS you can use this serial connection to enable the EFIS to tune the GTN COM radio. The AF-6600 / AF-5000 EFIS will send the required data to enable Smart Glide on the GTN.

ARINC Settings

RS-232 Serial Configuration

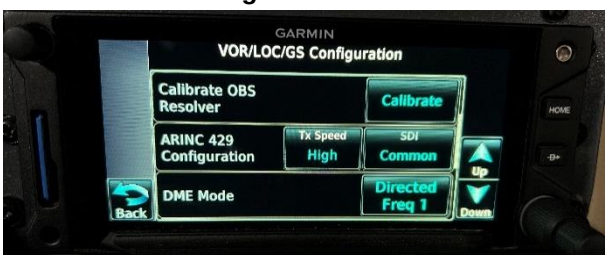
Fuel Flow and Tank Level data to GTN

Aviation data to EFIS

Sends Certified GPS position data to Transponder

Allows EFIS to Tune GTN COM Radio

VOR/LOC/GS Settings



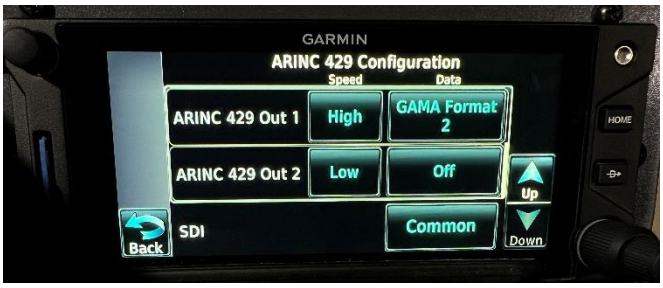
GTN Smart Glide Settings

Set Glide Ratio and Best Glide Speed for your aircraft

GTN-650xi/750xi Configuration for Dynon HDX / Skyview

The Dynon HDX or Skyview EFIS does not support remote GTN COM Radio tuning or send the required data to enable the use of Smart Glide

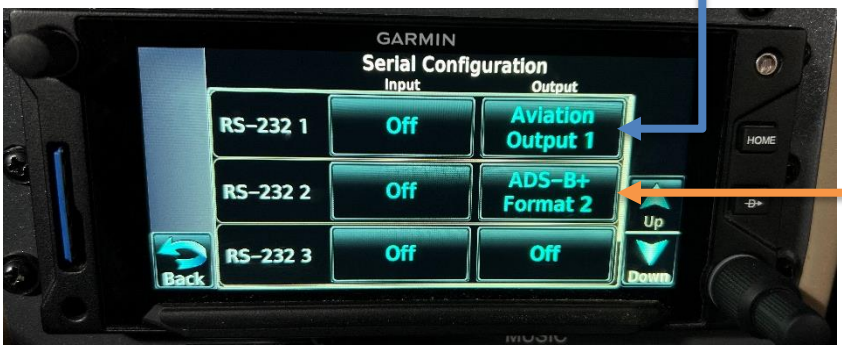
ARINC Settings



RS-232 Serial Configuration

Aviation data to EFIS

Sends Certified GPS position data to Transponder



VOR/LOC/GS Settings

Garmin GPS-175 Configuration

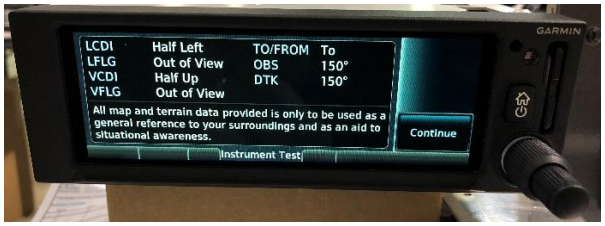
The GPS-175 plugs into the ACM GPS NAVIGATOR connector using harness P/N: 57536

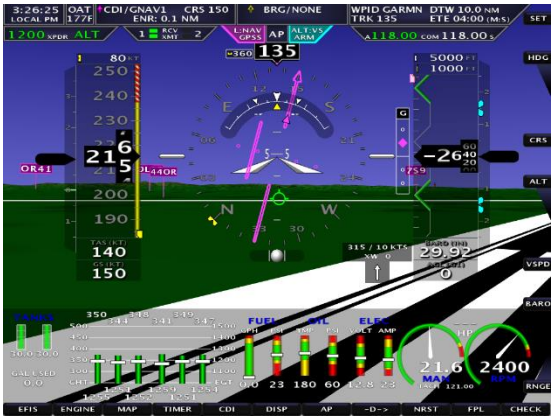
The GPS-175 needs to be configured (hold knob during power on) using the following settings:

AF-6600 / AF-5000 EFIS

Skyview EFIS

You can verify that the interface is working from the GPS-175 start up Instrument Test page. The EFIS LCDI, VCDI, Flag, OBS and DTK should match the GPS-175 display settings with the waypoint GARMN.





Garmin G5 EFIS Configuration

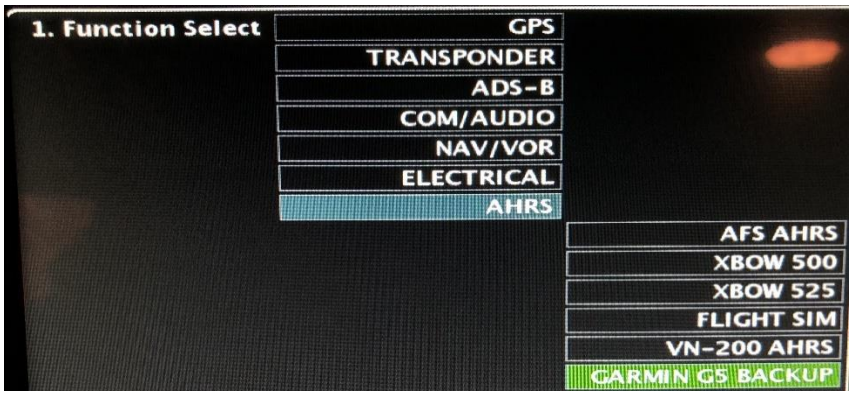
The Garmin G5 can be used as a backup ADAHRS for an AF-6600 or AF-5000 EFIS. The AFS EFIS will do AHRS cross checking using the systems SV-ADAHRS and G5. You can select the ADAHRS to use from the EFIS Options Menu by touching the aircraft symbol on the center of the screen. If an ADAHRS fails, the system should switch to the backup ADAHRS if you have selected AUTO. The color of the aircraft symbol changes based on the current ADAHRS in use. The G5 should be connected to the ACM Backup EFIS DSUB 9 Connector. The ACM Backup EFIS serial port connection is wired to the MFD EFIS using serial port #0.

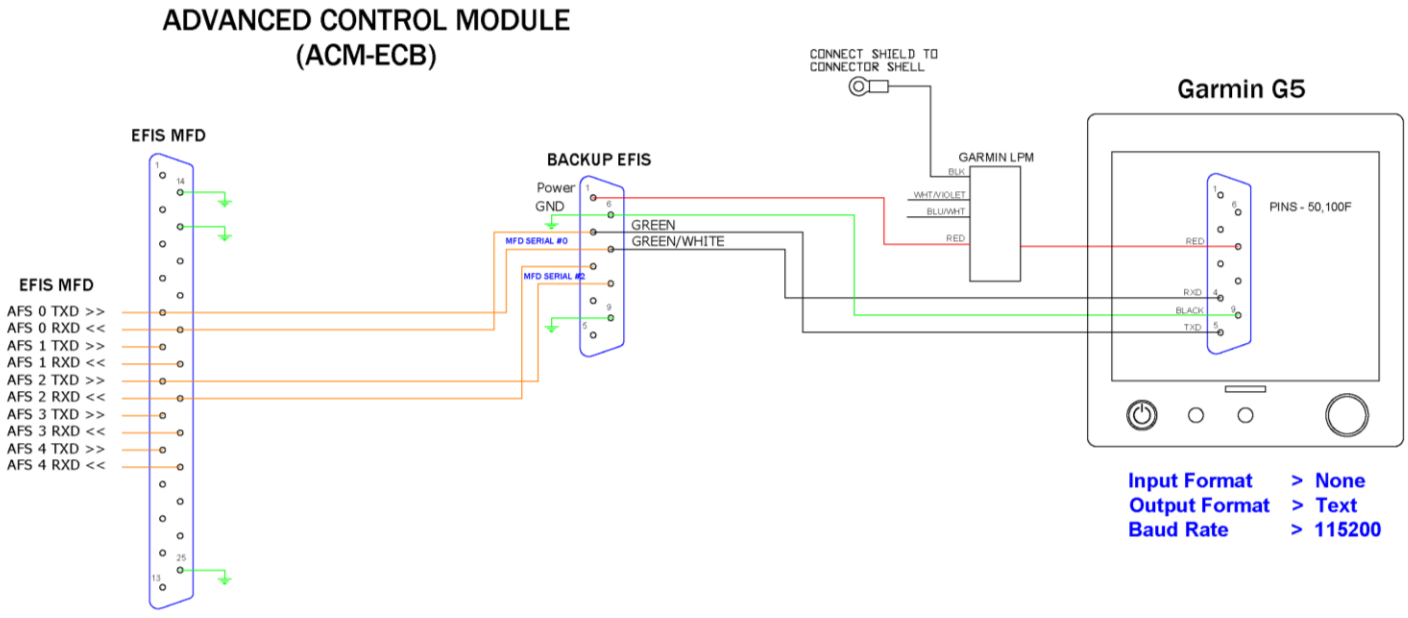
Garmin G5 - RS-232 Configuration

Input Format	None
Output Format	Text
Baud Rate	115200

MFD EFIS Serial Port 0 Function setting

- GARMIN G5 BACKUP





Instrument Panel System Tests

- ADAHRS 1 and 2 working
- Verify all buttons
- Verify Knobs
- Verify Joystick (AF-5600)
- Test Dimmer
- Verify Ethernet (EMS and Bugs work on both screens)
- Test AP Panel FD Button
- Verify Map Database is current and High Res Terrain from USB sticks
- Verify ADAHRS cross check is working
- Verify Bugs are turned ON (Heading, ALT, Speed)
- Verify EFIS Backup Battery (Shutdown and Button 1 Power Up)

RADIO and Audio Panel Tests

- Pilot PTT – Radio TX is displayed on the AF-COM Panel and radio transmits.
- Copilot PTT – Radio TX is displayed on the AF-COM Panel and radio transmits.
- Radio receives from handheld
- Intercom works between headsets, verify squelch and volume work.
- Music input works
- EFIS PFD sets and displays radio freq
- EFIS MFD sets and displays radio freq.
- Radio displays airport data from EFIS
- EFIS audio works, test using EFIS timer
- EFIS PFD and MFD screens can flip-flop radio

Trim Servo Tests

- Trim and Flap motors work from control sticks
- Flap motor works from panel flap switch
- Trim and Flap positions change on EFIS PFD and MFD.
- Program and test flap positions

Panel Dimming

- Panel buttons dim with EFIS screens
- AP Panel Module buttons dim with EFIS screens
- Dynon Radio dims with EFIS screens

Aircraft Lights

- Left Landing light turns on
- Right Landing light turns on
- Landing lights flash in Pulse Mode
- Nav lights turn on
- Strobe lights turn on

Auto Pilot Tests

- AF-SV Scan for Servos
- Set Travel Limits
- Motors turn ON and OFF

ELT Tests

- Test GPS Signal to ELT using scope on pin 4.

D6 EFIS Tests

- Compass Wiring?
- D6 Receiving GPS data?

Pitot Tube Tests

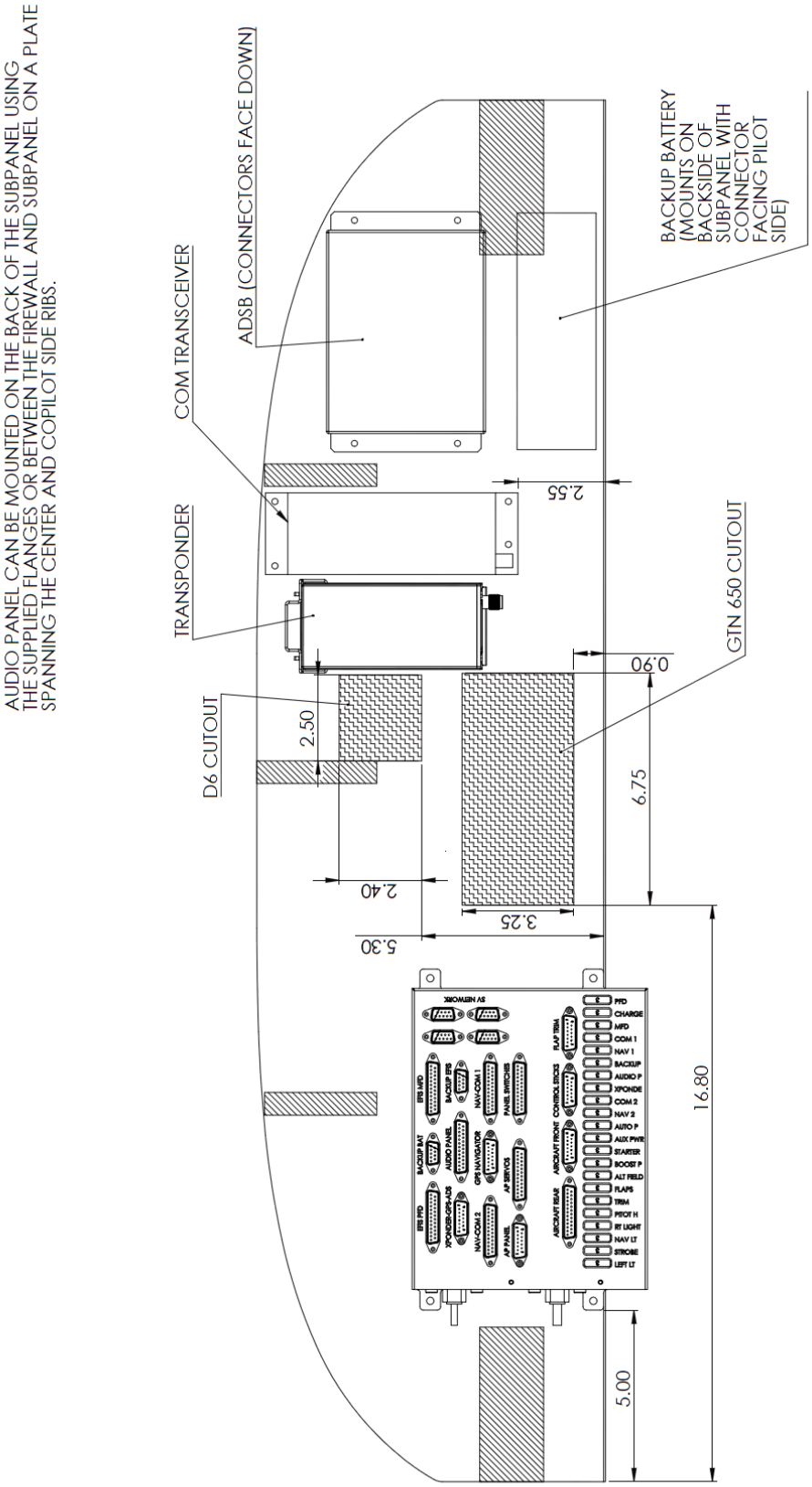
- Pitot Status line

+12V Power Plug

- Verify Power

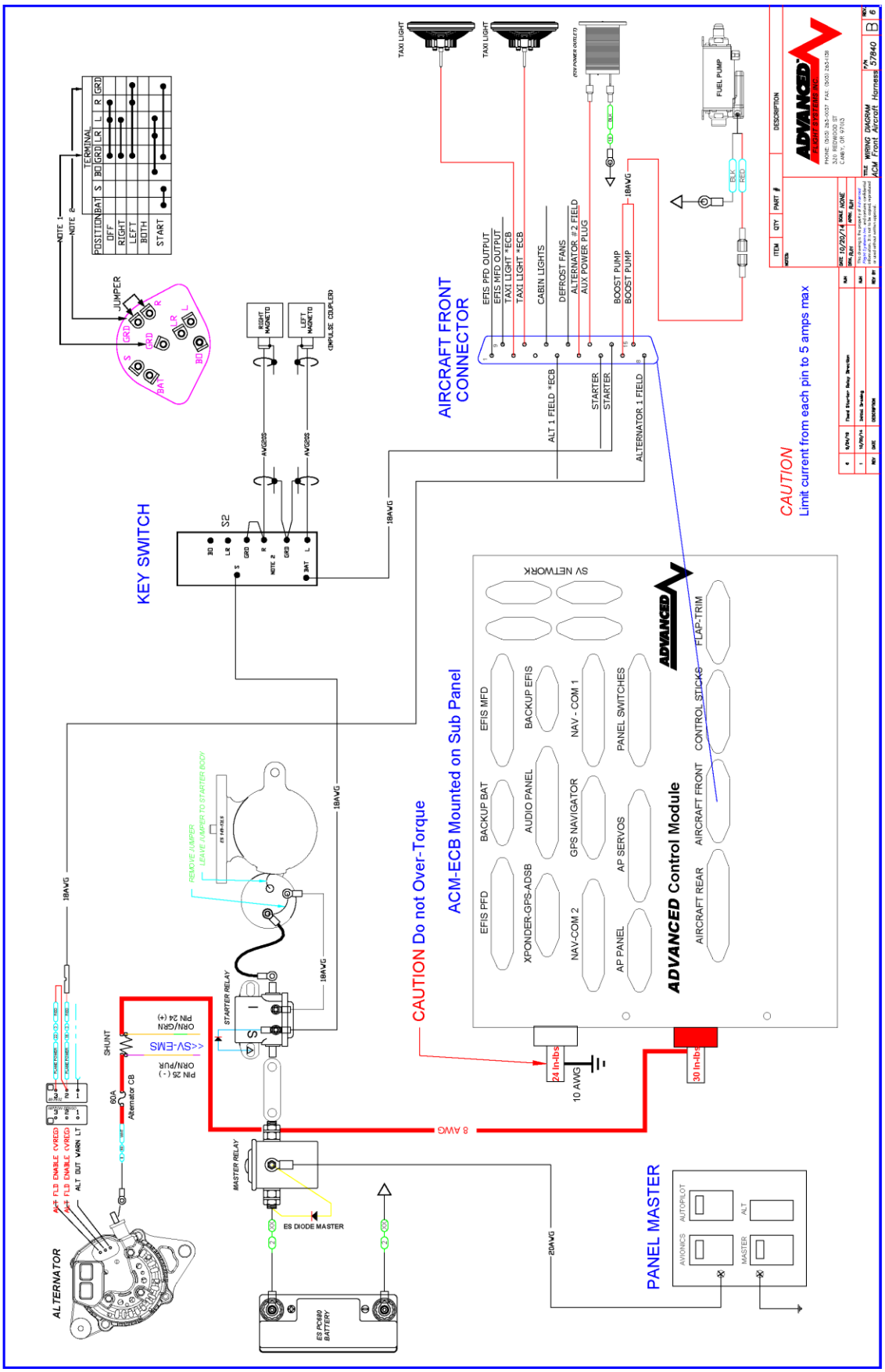
Remote Component Mounting

RV-7 Slider Panel

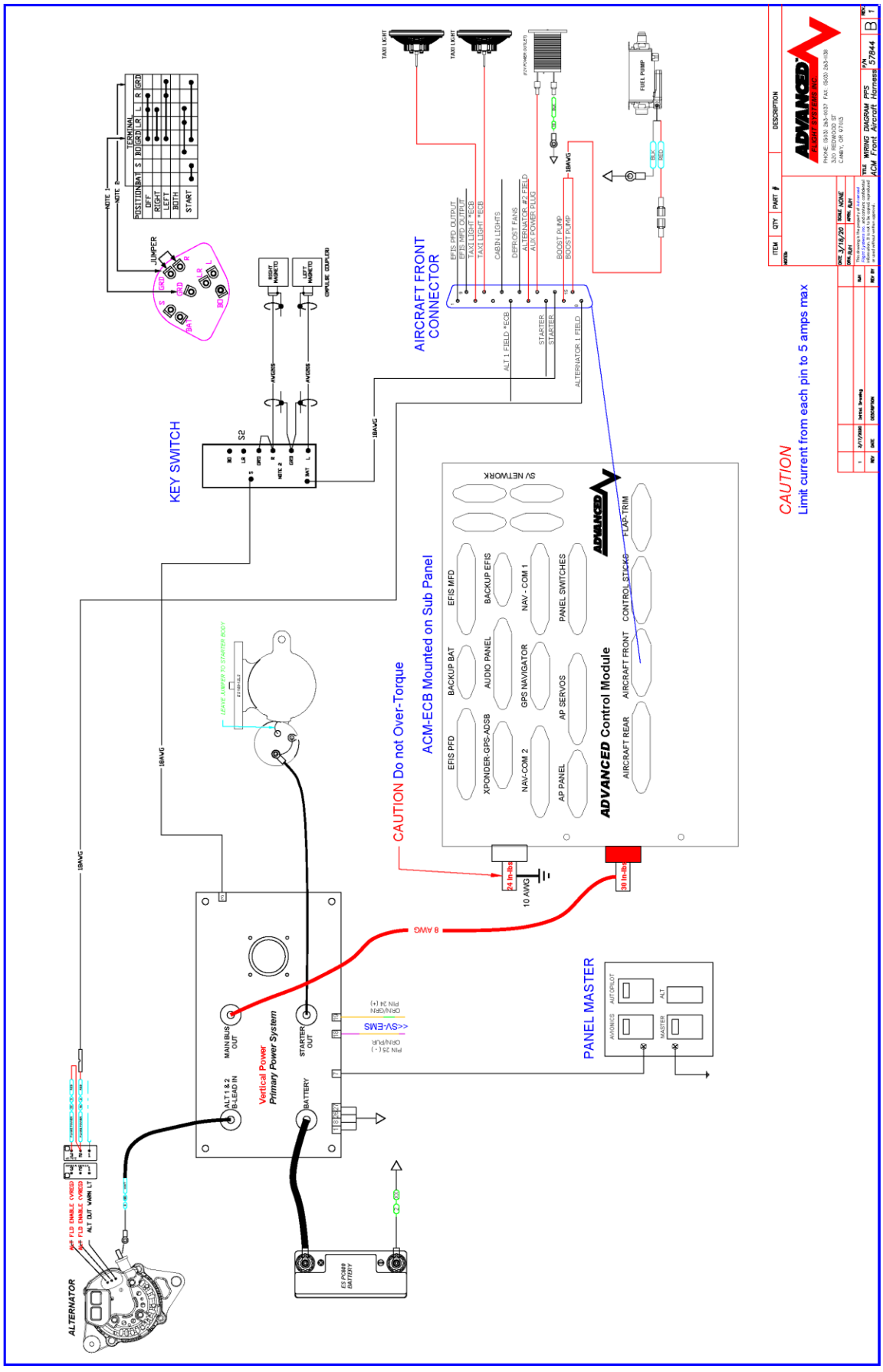


57840 Aircraft Front Harness

Use the supplied DSUB 15 Pin male connector assembly P/N: 50115MA and schematic to wire the aircraft front connector. Verify wire sizes from this drawing.

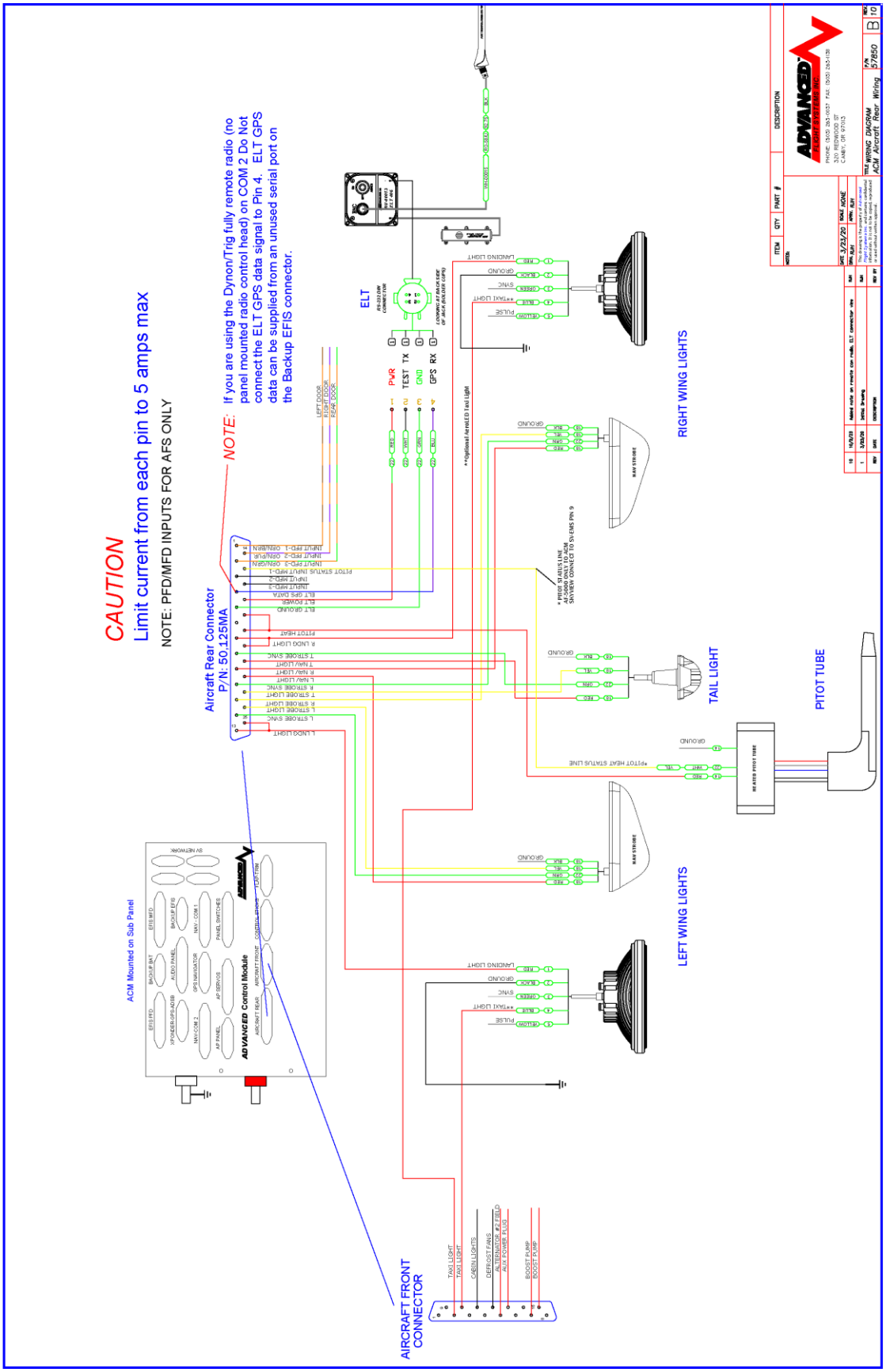


57844 Aircraft Front Harness with PPS

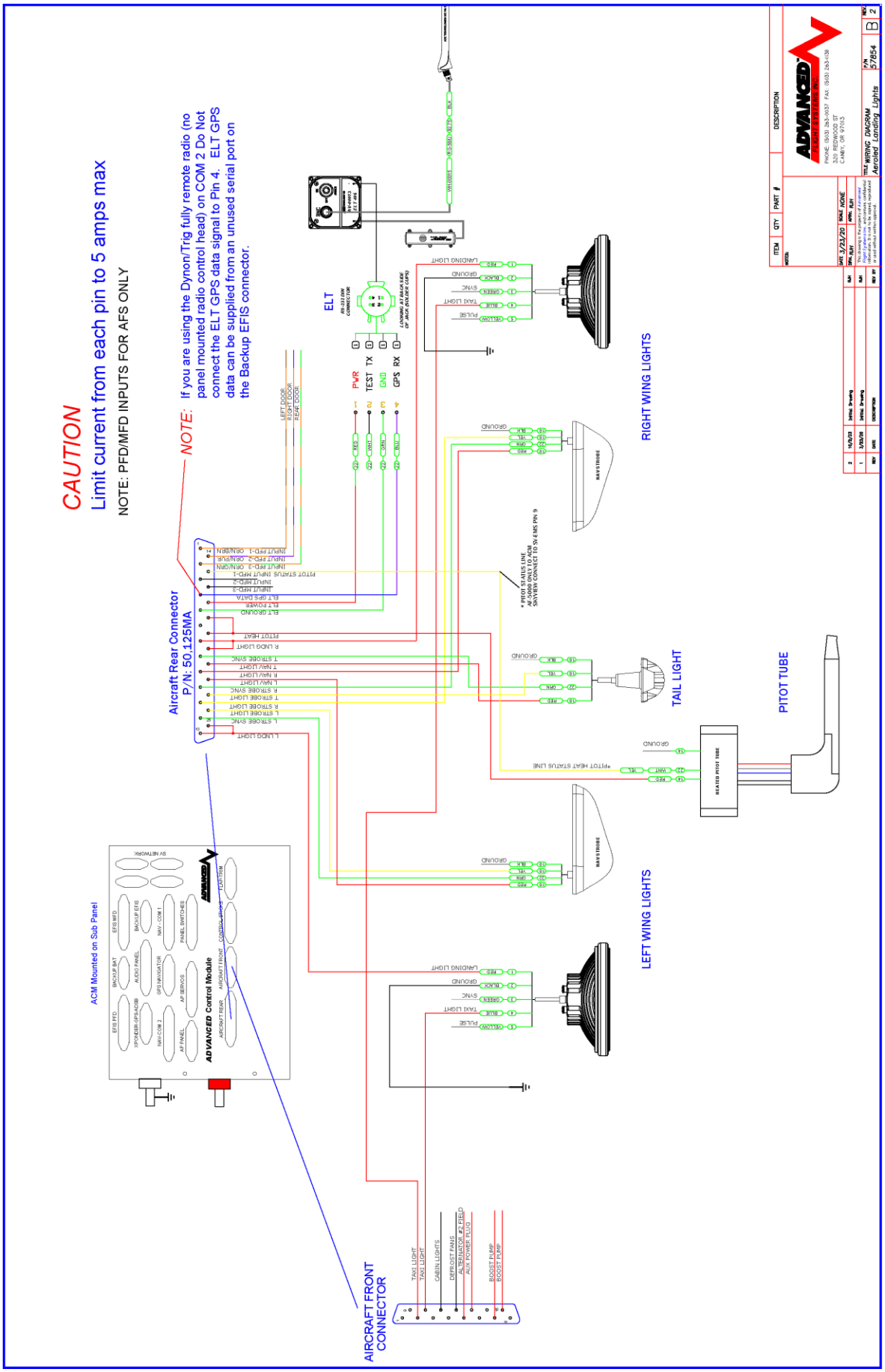


57850 AIRCRAFT REAR HARNESS

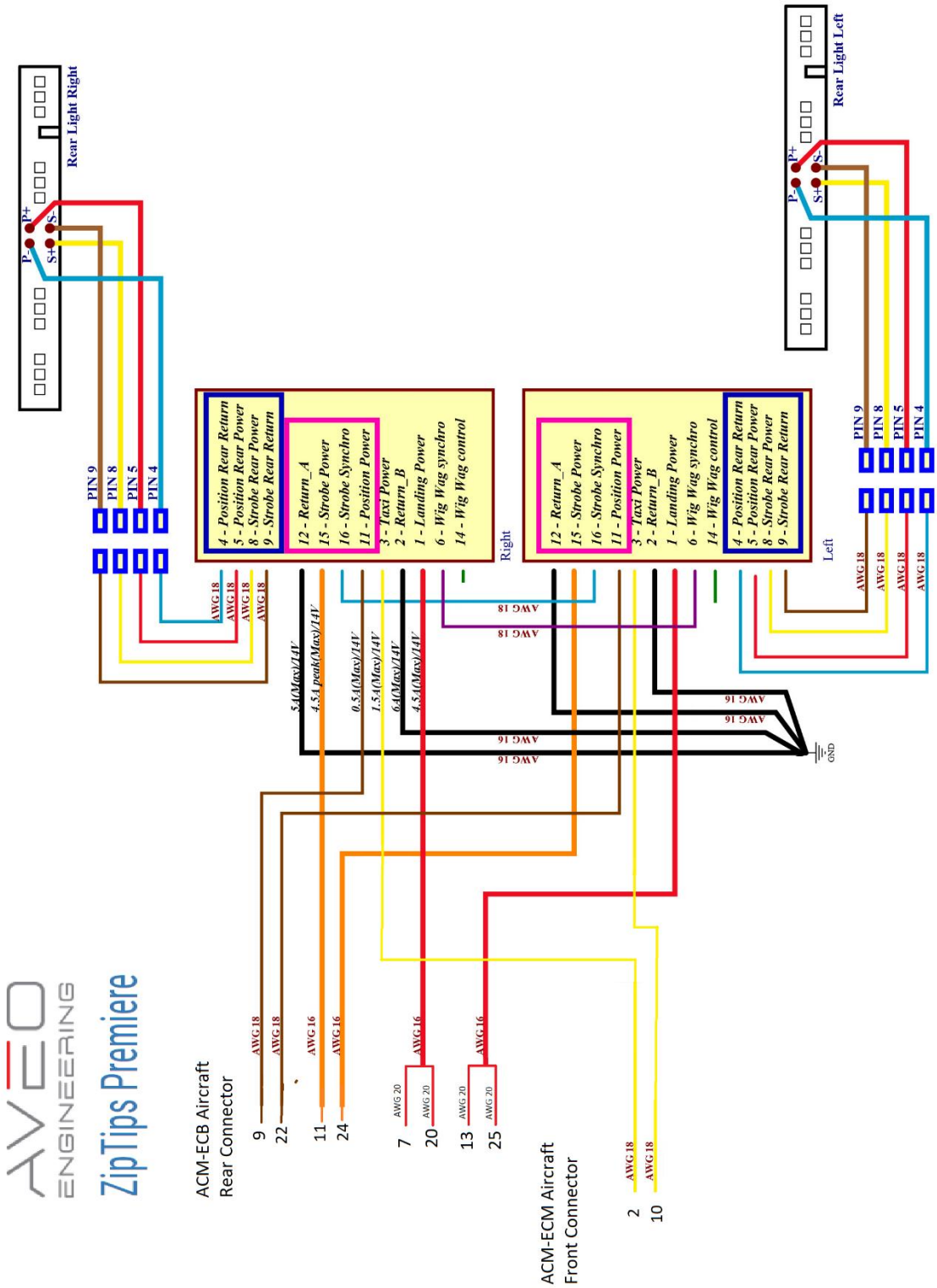
Use the supplied DSUB 25 Pin male connector assembly P/N: 50125MA and schematic to wire the aircraft front connector. Verify wire sizes from this drawing.



57854 AIRCRAFT REAR HARNESS AeroLED Lights

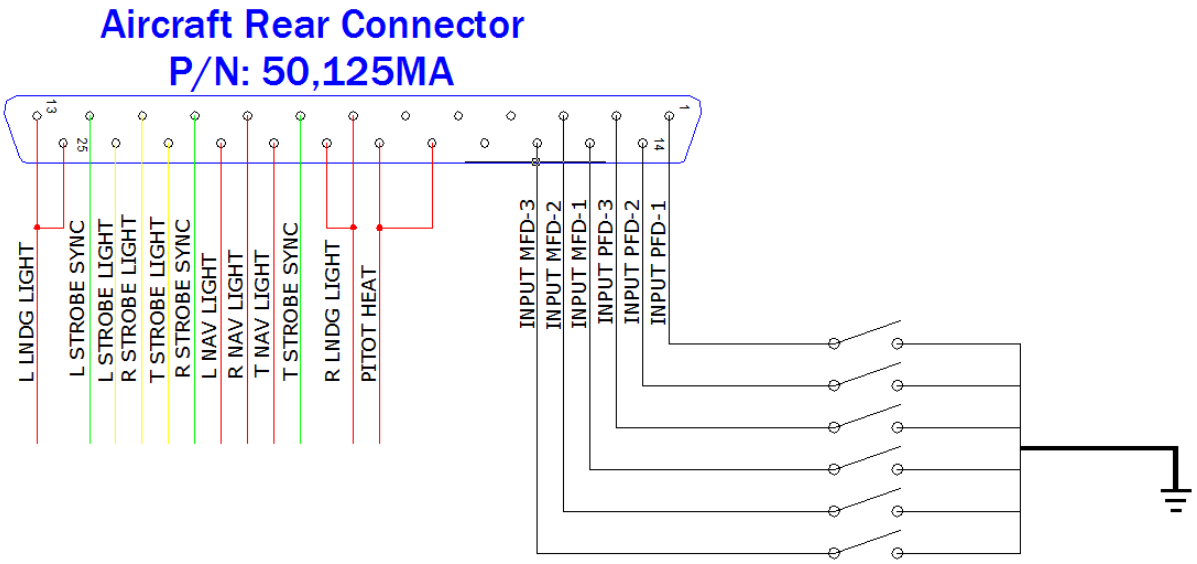


AVEO Engineering ZIP TIP Wiring



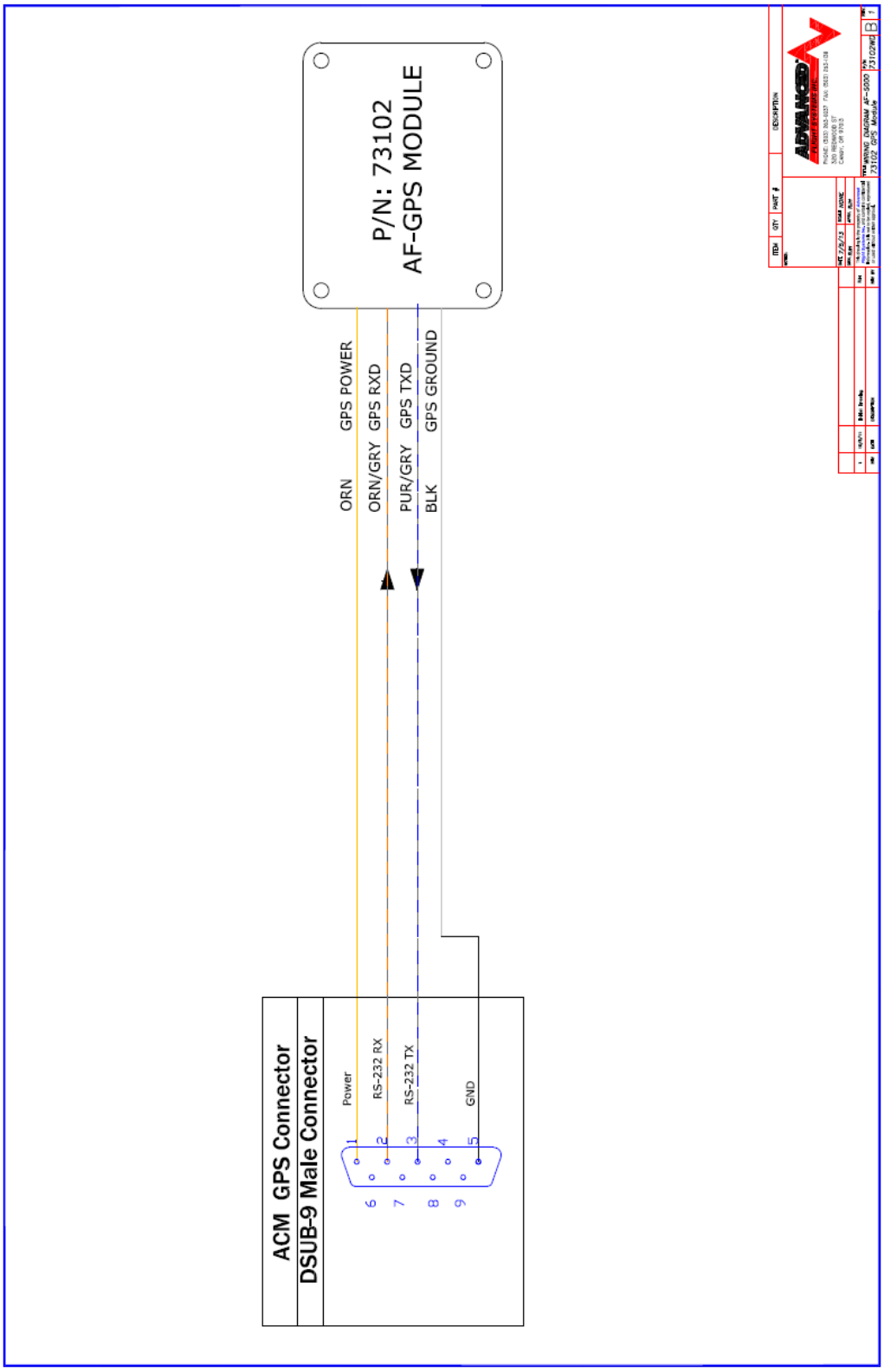
EFIS Inputs

The PFD and MFD EFIS screen digital inputs (1,2,3) are wired to the ACM Aircraft Rear Connector and configured in the EFIS calibration menu. The EFIS inputs are designed to activate when connected to ground.



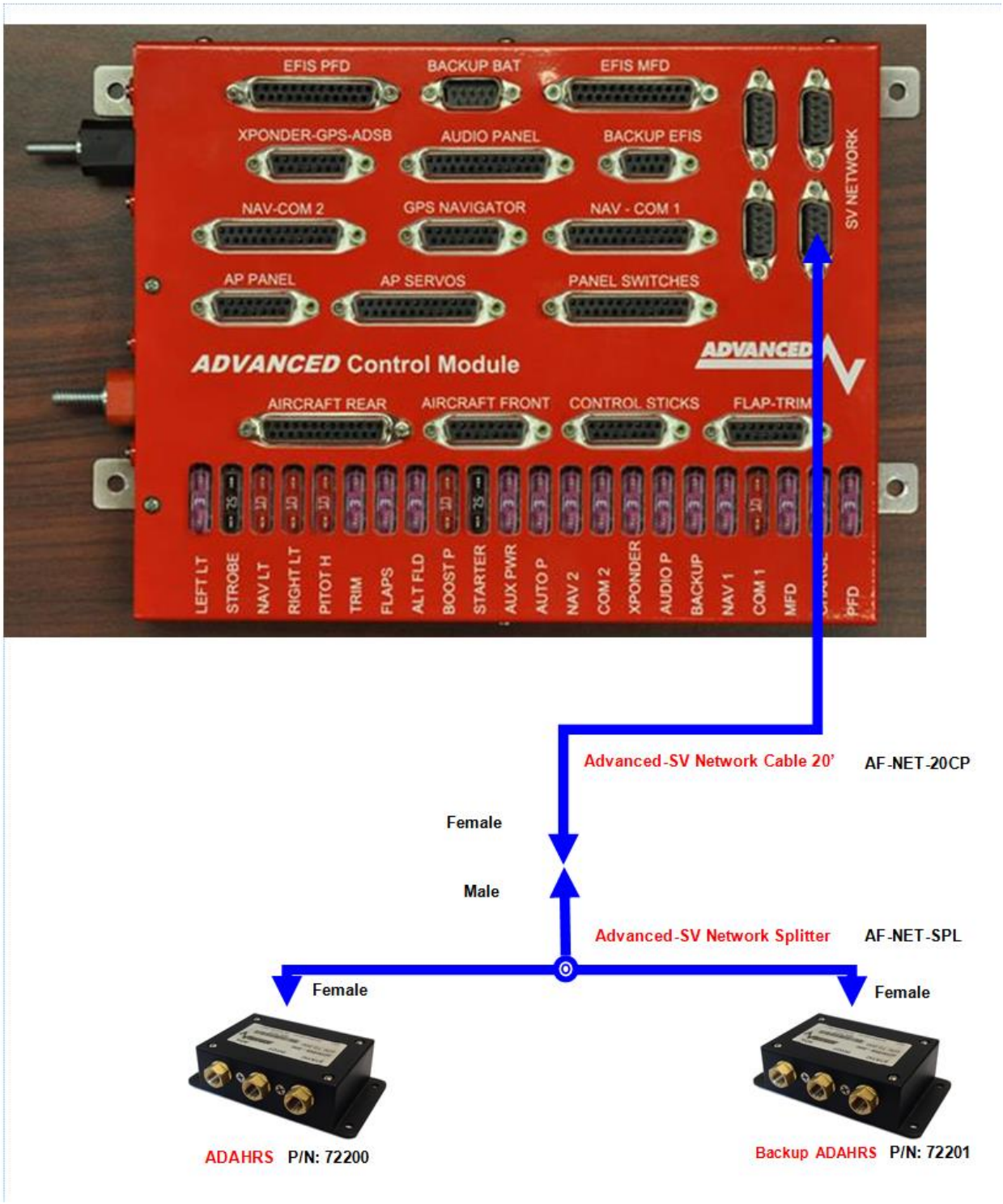
SV-GPS-250 GPS / SV-GPS-2020 / AFS P/N: 73102 GPS Wiring

After routing the AF-GPS wires through the fuselage install the supplied DSUB-9 Male connector and plug into the Female AF-GPS harness from the ACM Module. The SV-250-GPS and SV-GPS-2020 all have the same mounting and wiring. The 9 Pin connector on the GPS then plugs into the Transponder-GPS-ADSB harness that plugs into the ACM.



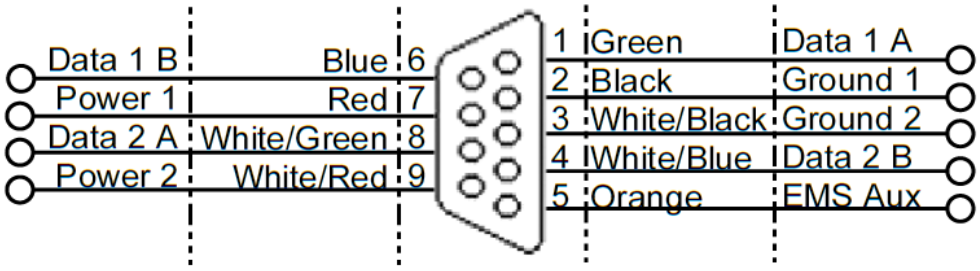
ADAHRS SV-ADAHRS 200/201 Wiring

After mounting the ADAHRS in the rear fuselage you should connect it to the spare SV-NETWORK port on the ACM module. The ADAHRS uses the standard SV-NETWORK DSUB-9 Female cables and should be wired using the following:



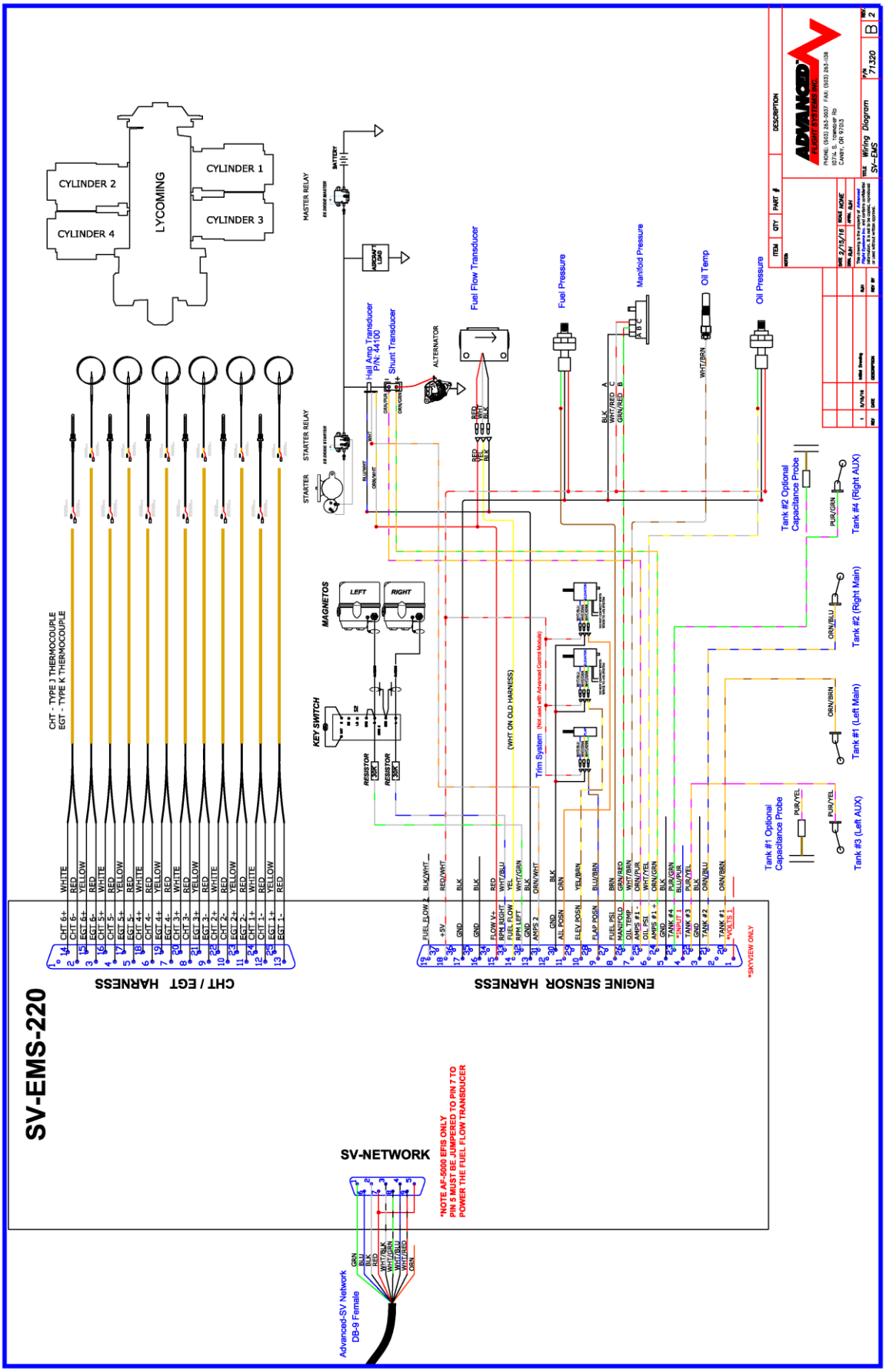
Advanced SV Network Wiring

Advanced-SV Network Female D9 Pin	Advanced-SV Network Cable Wire Color	Description
1	Green	Network Data 1 A
2	Black	Network Ground 1
3	White with Black Stripe	Network Ground 2
4	White with Blue Stripe	Network Data 2 B
5	Orange	EMS Auxiliary Voltage
6	Blue	Network Data 1 B
7	Red	Network Power 1
8	White with Green stripe	Network Data 2 A
9	White with Red stripe	Network Power 2

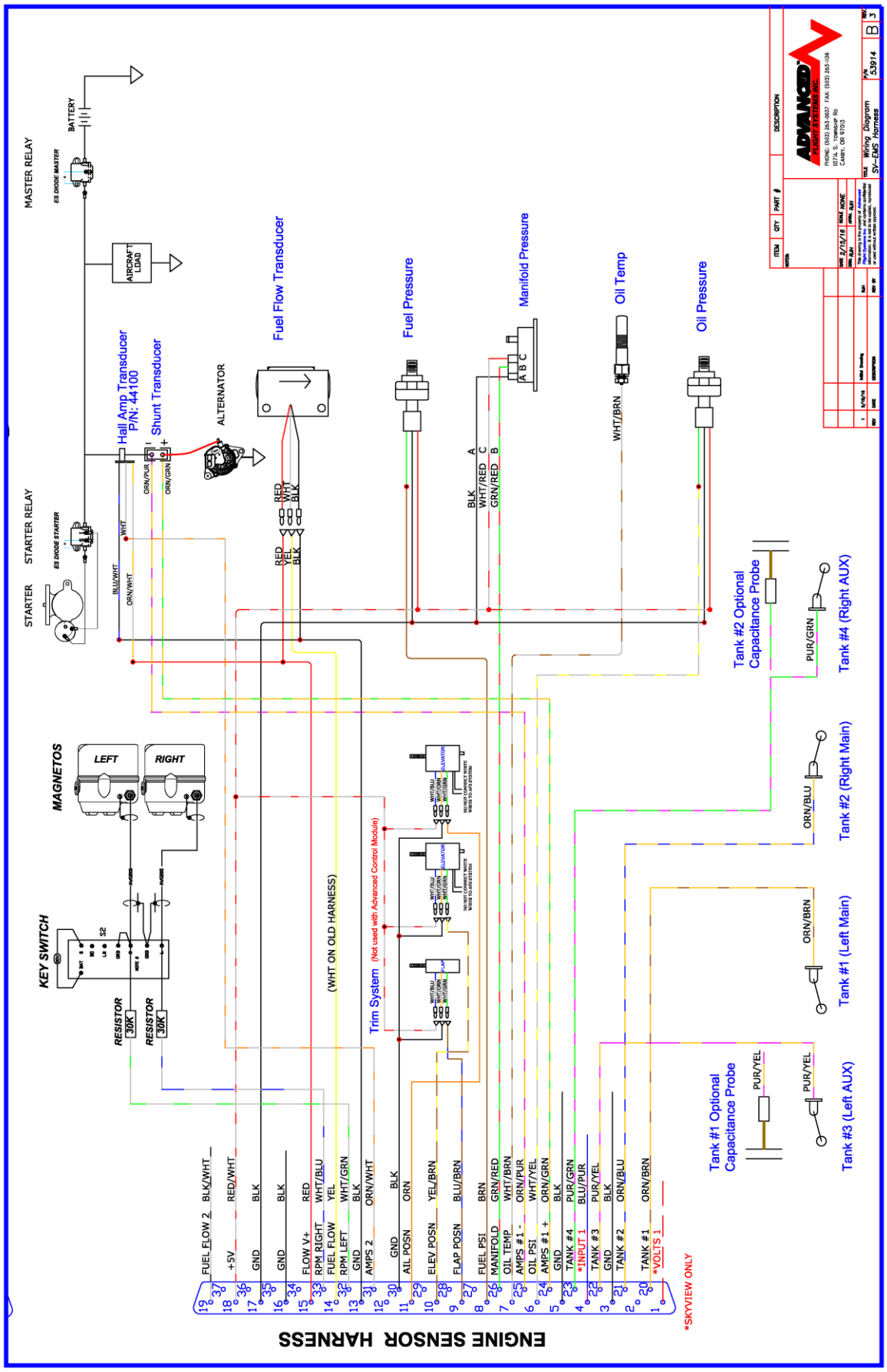


Network Female D9 Pin Insertion View (Rear)

71320 SV-EMS-220 Wiring



53914 SV EMS Engine Sensor Harness Diagram



P/N: 53914-AFS Engine Sensor Harness Wires

You can remove all unused wires from the Engine Sensor Harness using a pin removal tool

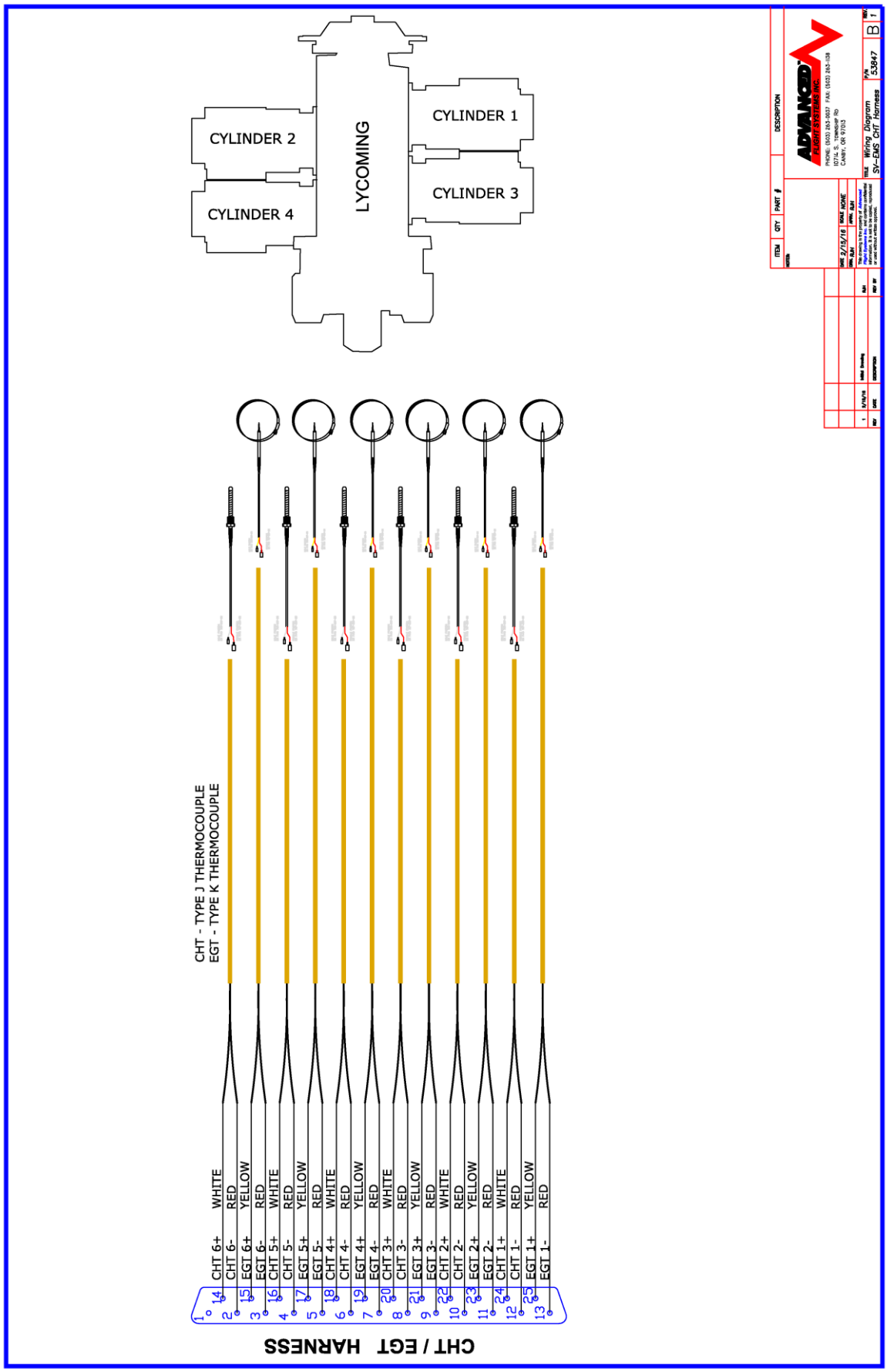
Pin	EMS 37-pin Harness Wire Color	Sensor
1	Red	Optional Aithre CO Detector
2	Yellow	Optional Aithre Tank PSI Detector
3		
4	Violet/Blue	Carb Temp
5	Black	Ground – Carb Temp
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9		
10		
11		
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	+8V Fuel Flow & Amps Hall Transducer Power. (*Must have SV-EMS Network Pin 7 jumper to Pin 5)
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1 – Float Sensor Only
21	Orange/Blue	Tank 2 – Float Sensor Only
22	Violet/Yellow	Tank 3 or Capacitance Tank 1
23	Violet/Green	Tank 4 or Capacitance Tank 2
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31		
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

P/N: 53914-HDX Engine Sensor Harness Wires

You can remove all unused wires from the Engine Sensor Harness using a pin removal tool

Pin	EMS 37-pin Harness Wire Color	Sensor
1	Red	Skyview Voltmeter 1
2	Yellow	
3		
4	Violet/Blue	Carb Temp
5	Black	Ground – Carb Temp
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9	Brown/Blue	GP Input 5 – RV14 Pitot Warning
10	Brown/Yellow	GP Input 6 – RV14 Canopy
11	Orange	GP Input 7 – RV14 Stall Tab
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	Fuel Flow & Amps Hall Transducer Power.
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1 – Float Sensor Only
21	Orange/Blue	Tank 2 – Float Sensor Only
22	Purple / Yellow	Tank 3
23	Purple / Green	Tank 4
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31		
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

53847 SV EMS EGT-CHT Harness Diagram

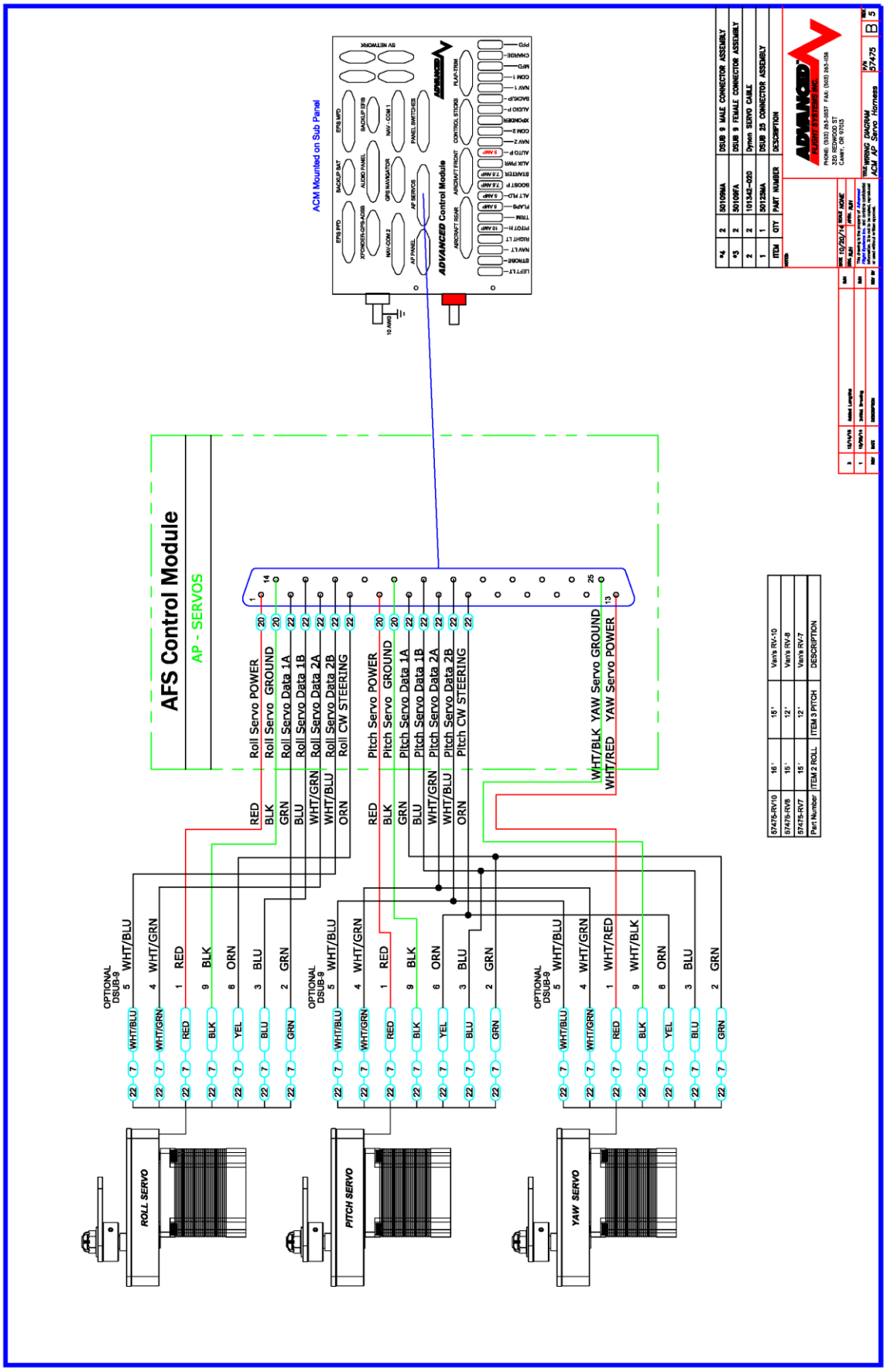


Advanced Control Module Fuses				
Fuse	**Description**	**Max Amps**	**Connector (Pins)**	**Control**
1	Left wing landing light	10	AIRCRAFT REAR (13,25)	CPU
2	Stobe Lights	10	AIRCRAFT REAR (11,23,24)	CPU
3	Nav Lights	10	AIRCRAFT REAR (9,21,22)	CPU
4	Right wing landing light	10	AIRCRAFT REAR (7,20)	CPU
5	Pitot Heat	15	AIRCRAFT REAR (18,19)	Switch
6	Trim Servos	5	AP PANEL (9)	Vin-Power
7	Flap Motor	10	FLAP-TRIM	CPU
8	Alternator Field	5	AIRCRAFT FRONT (8)	Switch
9	Boost Pump	10	AIRCRAFT FRONT (7,15)	Switch
10	Starter Contactor	10	AIRCRAFT FRONT (6,14)	Vin-Power
11	AUX Power (Defrost, AUX Plug)	5+5	AIRCRAFT FRONT (12,13)	Switch
12	Autopilot servos	10	AP SERVOS (1,5,13)	Switch
13	Nav 2 Radio	10	NAV-COM 2 (12,13)	AV2 Relay
14	Com 2 Radio	10	NAV-COM 2 (1,2,3)	AV2 Relay
15	Transponder + ADS-B	5	XPONDER-GPS-ADSB (1,6)	AV2 Relay
16	Audio Panel	5	AUDIO PANEL (1,2)	AV2 Relay
17	Backup EFIS - CO Detector	5	BACKUP EFIS (1,5)	AV2 Relay
18	NAV 1 Radio + GPS	10	NAV-COM 1 (12,13) GPS NAVIGATOR (1,2)	AV1 Relay
19	Com 1 Radio	10	NAV-COM 1 (1,2,3)	AV1 Relay
20	MFD EFIS	5	EFIS MFD (1,2)	AV1 Relay
21	Backup Battery Charger	10	BACKUP BAT (2,3)	AV1 Relay
22	PFD EFIS	5	EFIS PFD (1,2)	Vin-Power

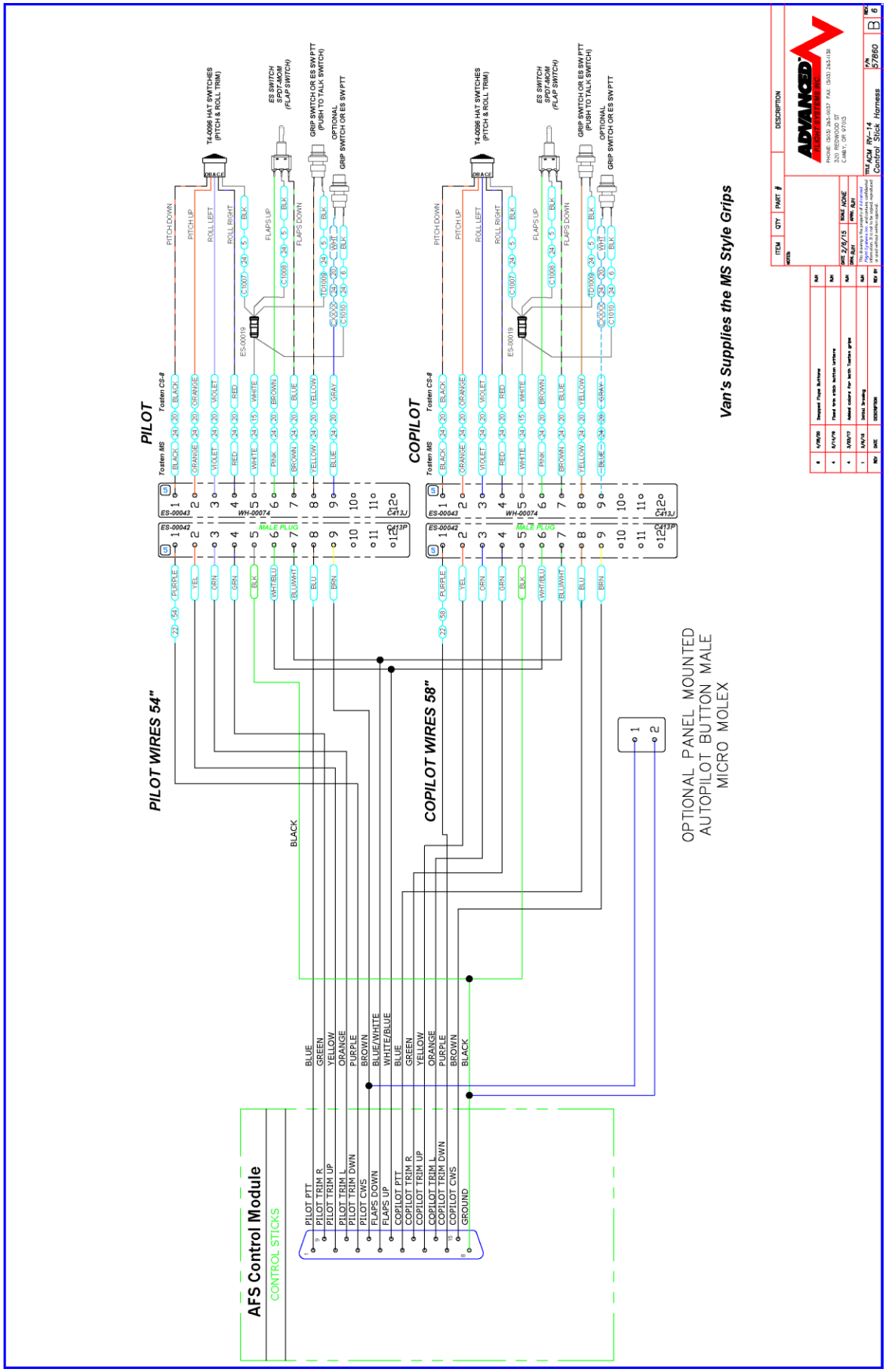
ACM-ECB Electronic Circuit Breakers

The ACM-ECB module uses electronic circuit breakers that can be reset or shut off from the EFIS screen.

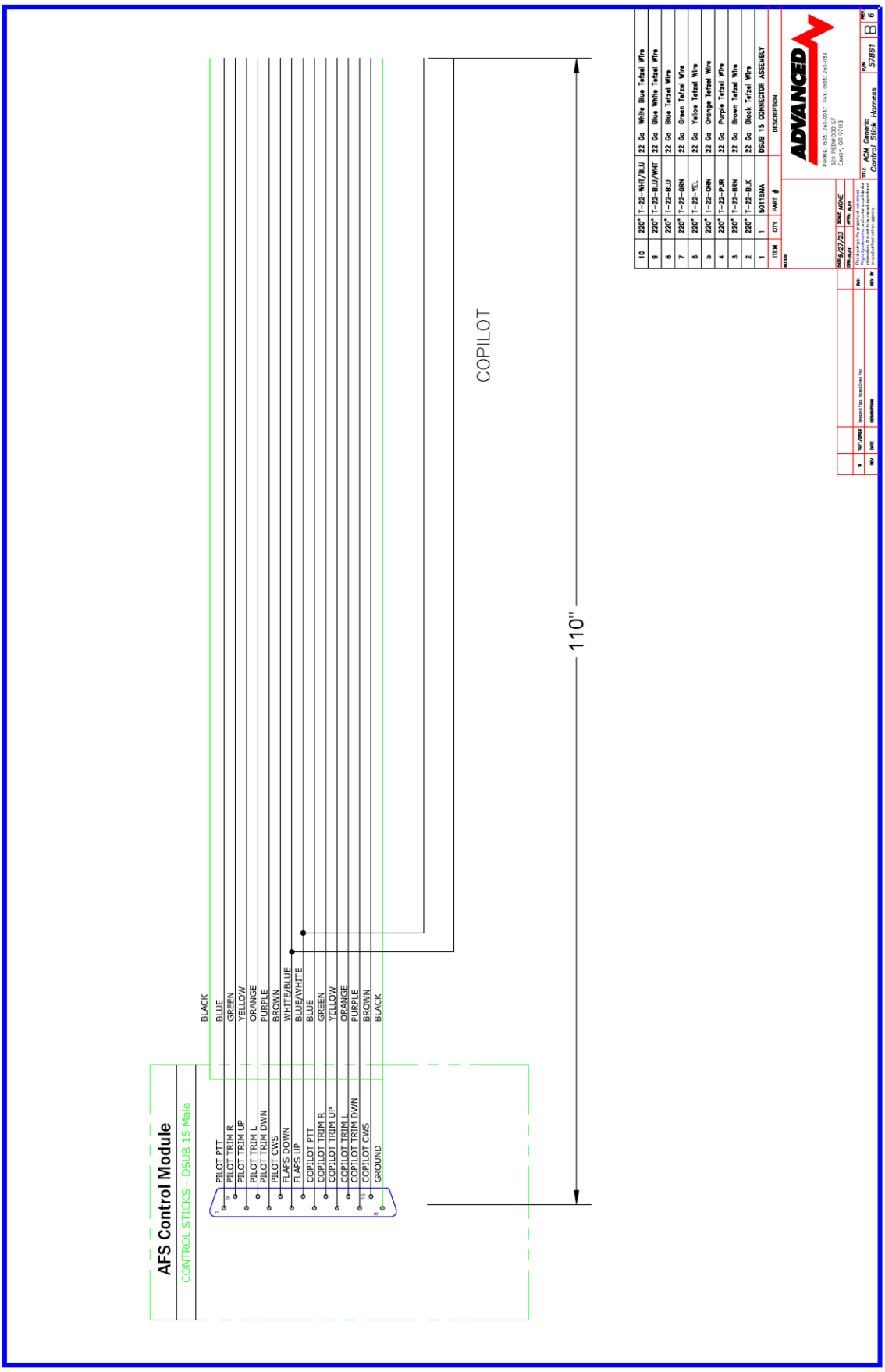
57475 AP Servo Harness



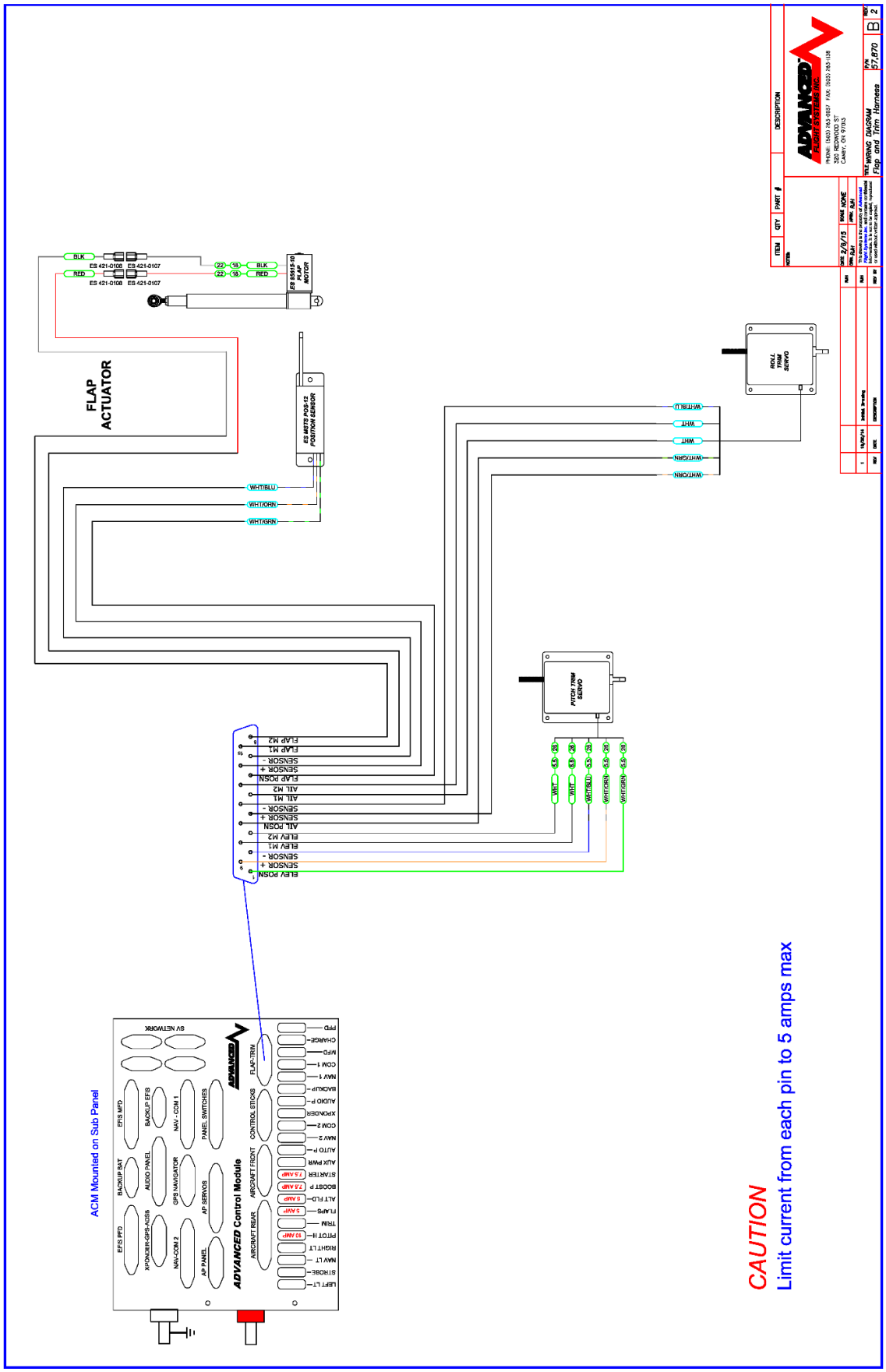
57860 Control Stick Harness with Micro Molex



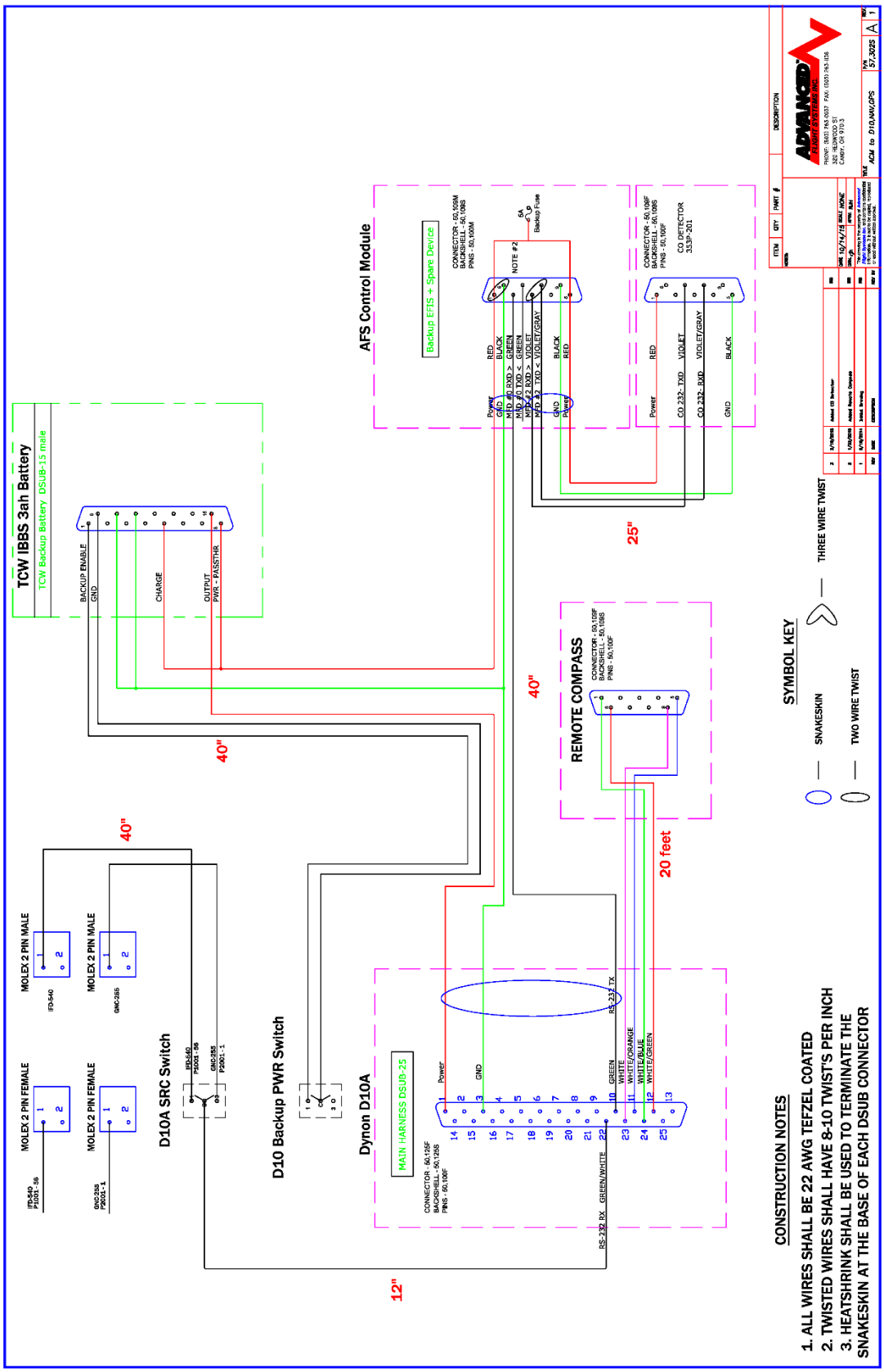
57861 Control Stick Harness Generic



57870 Trim and Flap Servo Harness



57302 D10 Backup Harness with CO and TCW Battery



Use RG400 Cable and Contact airframe manufacturer for recommended mounting locations.

Antenna Installation

AFS does not supply COM antennas, radio coaxial cable, or antenna BNC connectors. The antenna (including coaxial cable and connector) should be installed according to the manufacturer's instructions.

The following considerations should be taken into account when siting the antenna:

- The antenna should be well removed from any projections, the engine(s) and propeller(s). It should also be well removed from landing gear doors, access doors or others openings which will break the ground plane for the antenna.
- Separation of COM antenna(s) from transponder(s) and GPS receivers / antennas: 1 foot (12 inches).
- Separation of COM antenna(s) from Automatic Direction Finder (ADF) or 121.5 MHz Emergency Locator Transmitter (ELT): 4 feet (48 inches)
- Separation of COM antenna from another COM or NAV antenna: Recommended separation between COM antenna(s), NAV antenna(s), and ELT antennas is 6 feet (72 inches). Minimum required separation between antennas is 4 feet (48 inches). Ideally, install the primary COM antenna on the lower fuselage, and install the secondary / standby COM antenna on the upper fuselage.
- The COM antenna(s) should not be installed in close proximity to AF-5000 displays, modules, or servos to avoid RF interference.
- Where practical, plan the antenna location to keep the cable lengths as short as possible and avoid sharp bends in the cable to minimize the VSWR (voltage standing wave ratio).
- Double-shielded coaxial cable is superior to single shield coax – more of the transmit power will be coupled to the antenna, and less received signal will be lost.
- Electrical connection to the antenna should be protected to avoid loss of efficiency as a result of the presence of liquids or moisture. All antenna feeders shall be installed in such a way that a minimum of RF energy is radiated inside the aircraft.

Antenna Ground Plane

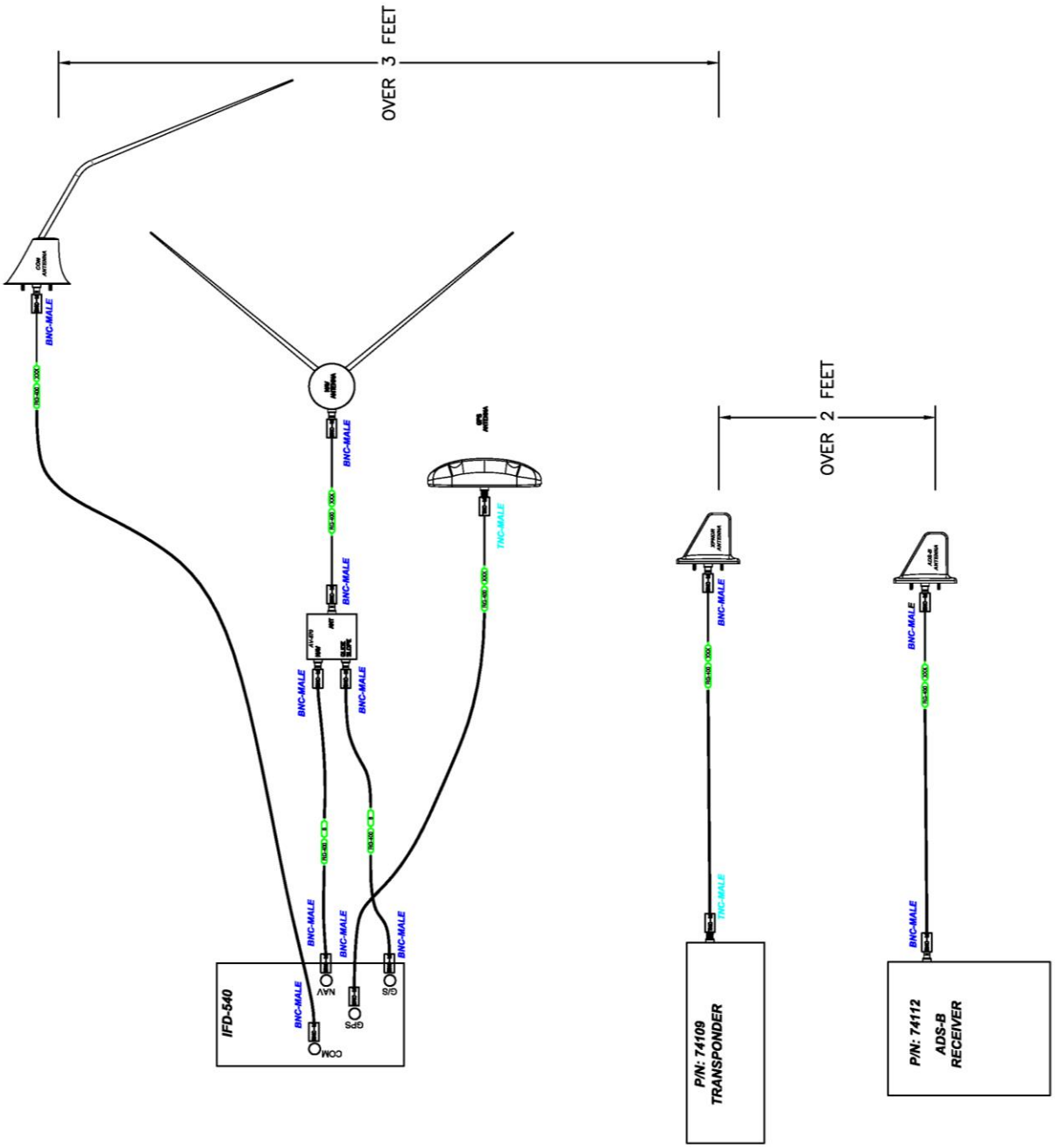
When a conventional aircraft monopole antenna is used it relies on a ground plane for correct behavior. For ideal performance the ground plane should be very large compared to the wavelength of the transmission, which is approx. 7.5 feet. In a metal skinned aircraft this is usually easy to accomplish, but is more difficult in a composite or fabric skinned aircraft. In these cases a metallic ground plane should be fabricated and fitted under the antenna.

As the ground plane is made smaller, the actual dimensions of the ground plane become more critical, and small multiples of the wavelength should be avoided, as should circles. Rectangles or squares are much less likely to create a critical dimension that resonates with the transmissions. The thickness of the material used to construct the ground plane is not critical, providing it is sufficiently conductive. A variety of proprietary mesh and grid solutions are available. Heavyweight cooking foil meets the technical requirements, but obviously needs to be properly supported.

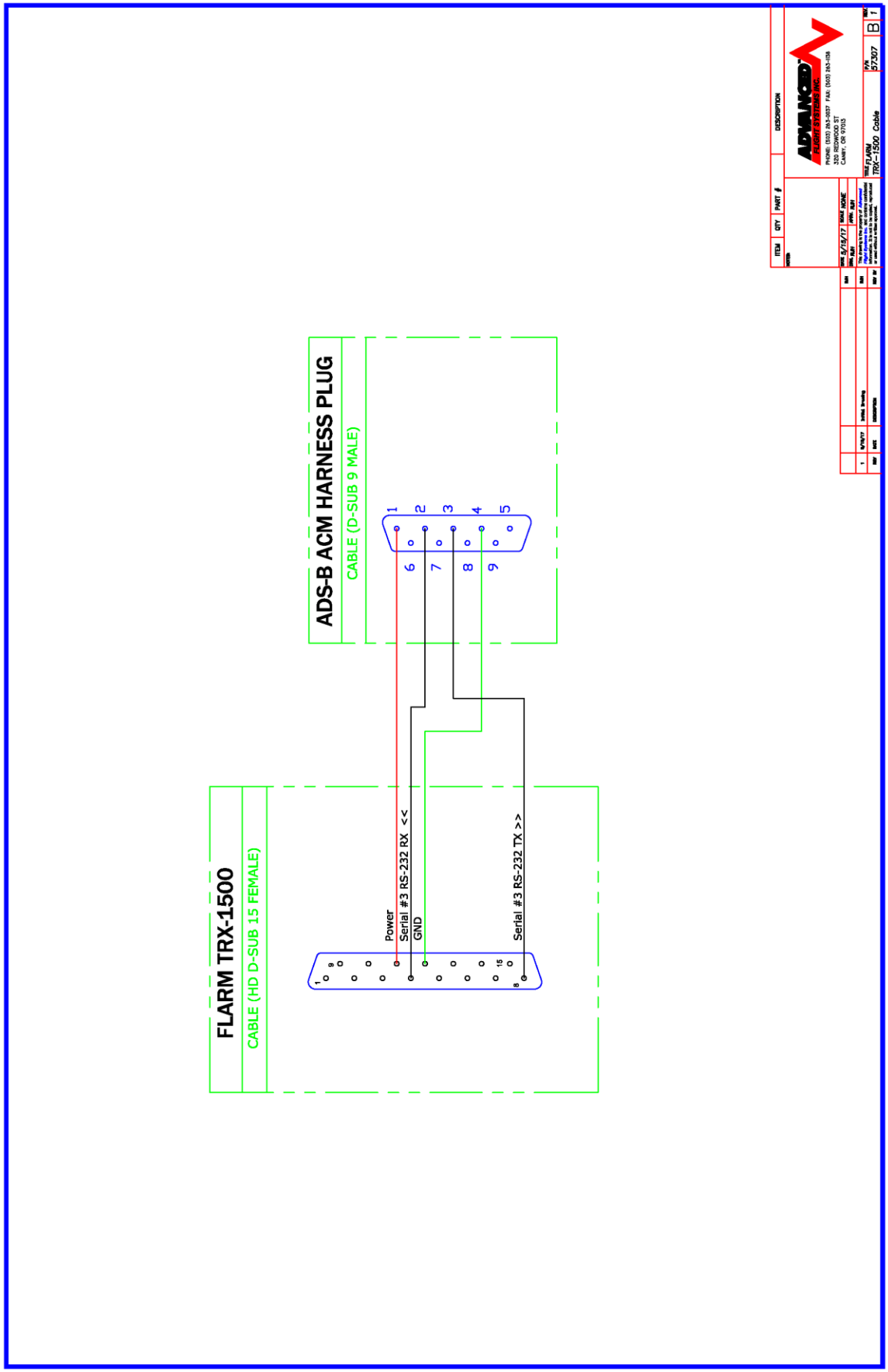
Antenna Cable

When routing the cable, ensure that you:

- Route the cable away from sources of heat.
- Avoid routing antenna cables together.
- Route the cable away from potential interference sources such as ignition wiring, 400Hz generators, fluorescent lighting and electric motors.
- Allow a minimum separation of 300 mm (12 inches) from an ADF antenna cable.
- Keep the cable run as short as possible.
- Avoid routing the cable around tight bends.
- Avoid kinking the cable even temporarily during installation.
- Secure the cable so that it cannot interfere with other systems.



FLARM TRX-1500 Interface



Use the TRX PC configuration software set the TRX-1500 to:

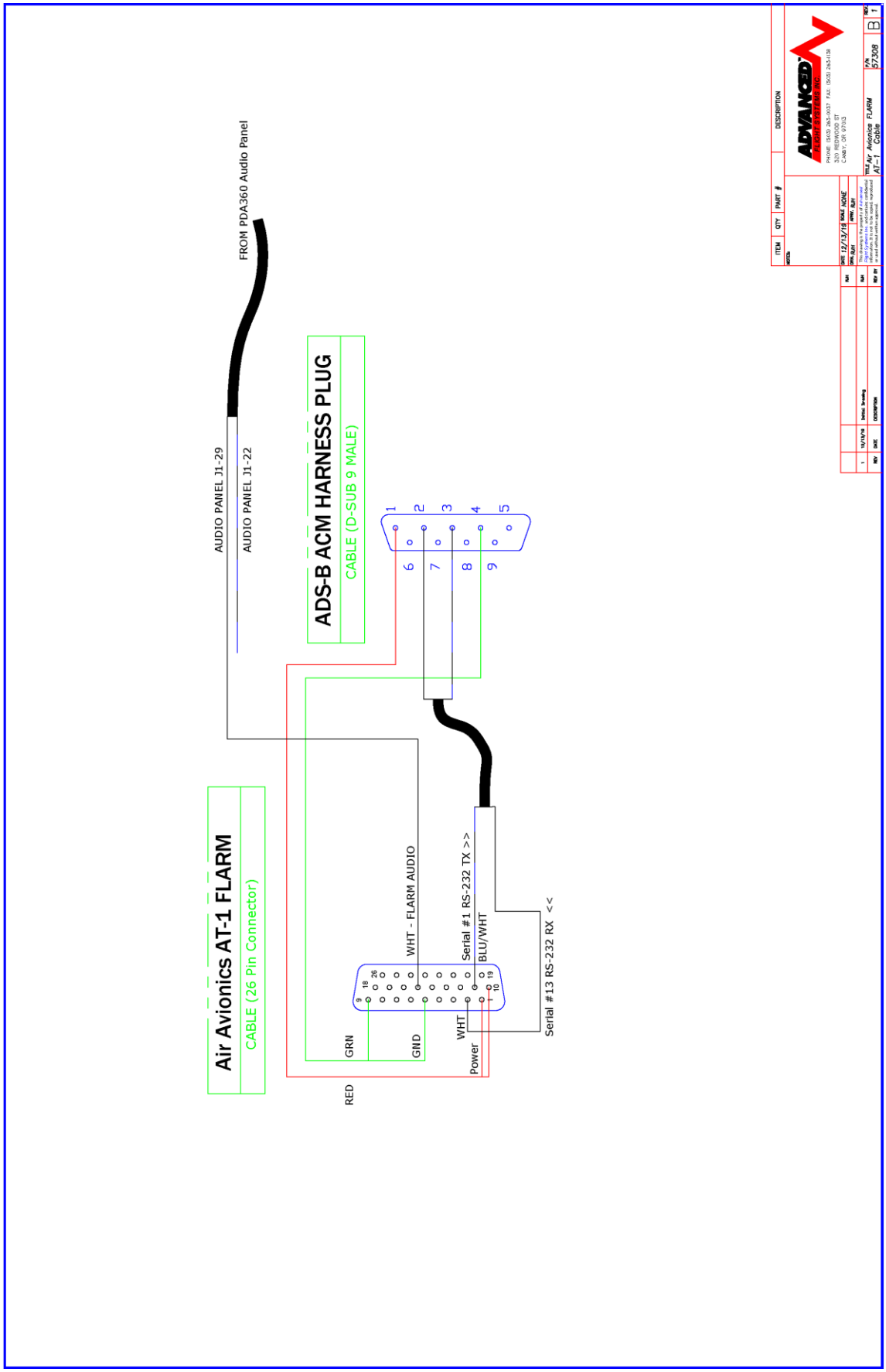
Serial Port 3 Output format: GARMIN TIS

Baud Rate: 9600

On the MFD EFIS screen:

Calibration->Admin Settings. Set item, '**6. Port 3**' to '**ZAON TRFC**'

FLARM AT-1 Wiring



RV-14 Panel Install

RV-14 Remote Component Mounting

The remote radio transceiver, backup battery and audio panel mount on new ribs mounted in the glove compartment area. The following modifications need to be done:

- Remove glove compartment ring from the RV-14 sub panel P/N: F-01455B
- Install new ribs to the RV-14 sub panel P/N:68102 and P/N:68103
- Install new center console cover plate with Alternator Circuit breaker and Alternator Shunt P/N: 68101

Avidyne IFD-540 Tray Mounting

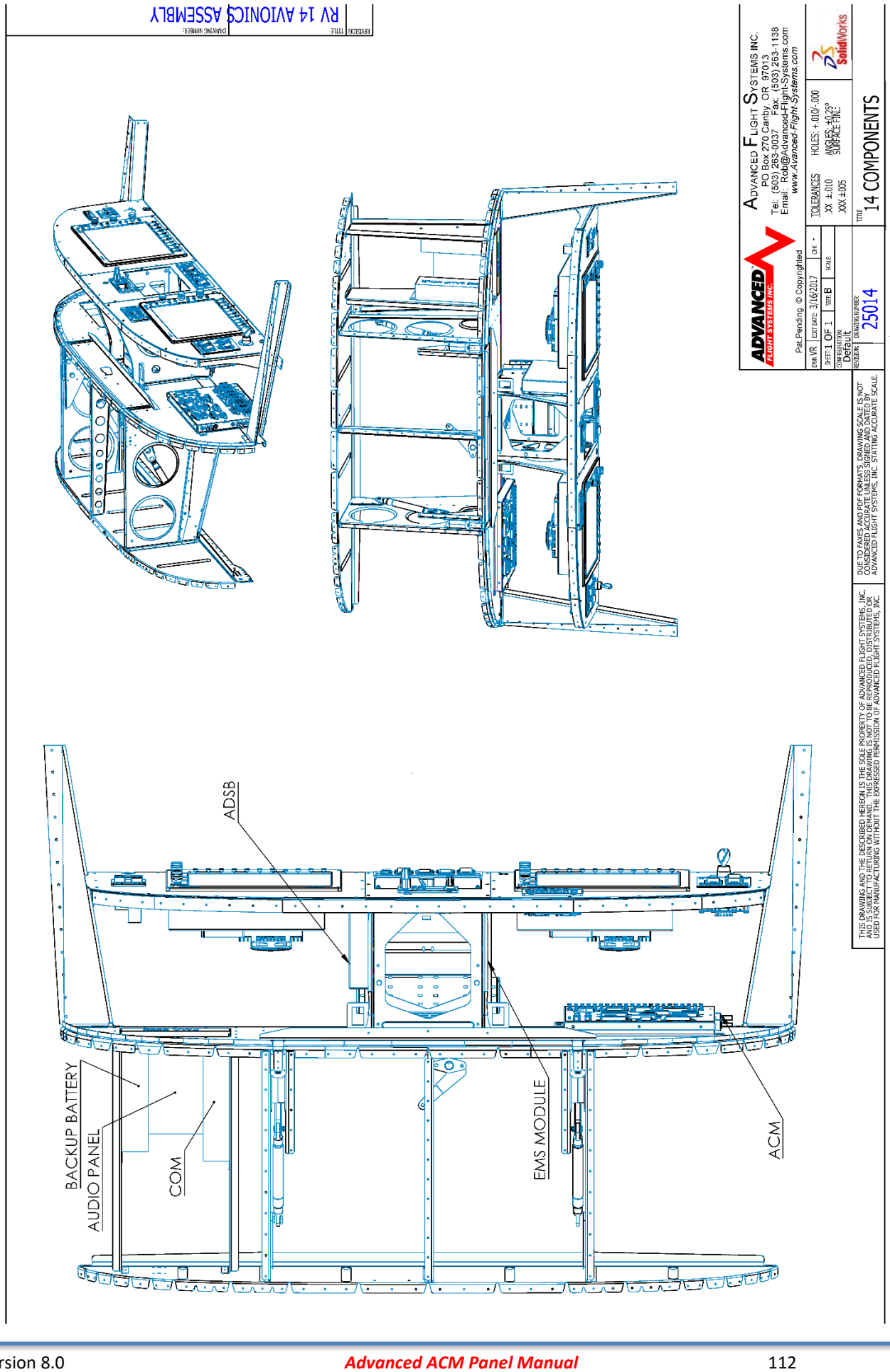
The IFD Tray mounts to the RV-14 airframe panel ribs. You will need to use the IFD tray as a template to mark the side hole locations on the airframe panel ribs. After marking the 8 hole locations, 4 on each side you will need to drill for 6-32 screws. Mount the tray to the airframe panel ribs using qty 8 6-32 x 3/8" counter sunk screws and nylon lock nuts.

RV-14 EMS-220 Module Install

Mount the EMS-220 to the left side panel mounting rib, see P/N: 25014 RV-14 remote component mounting drawing.

RV-14 SV-ADSB-470/472 ADS-B Module Install

Mount the ADSB receiver to the right side panel mounting rib, see P/N: 25014 RV-14 remote component mounting drawing.


RV 14 AVIONICS ASSEMBLY
ADVANCED FLIGHT SYSTEMS INC.
PO Box 270 Canby, OR 97013
Tel: (503) 263-0037 Fax: (503) 263-1138
Email: Rob@Advanced-Flight-Systems.com
www.Avanced-Flight-Systems.com
Pat.Pending © Copyrighted
TOLERANCES
XX ±.010
XXX ±005
HOLES: +.010/-.000
ANGLES: ±1/2°
SURFACE FIN.:
SolidWorks
DWN VR
EDIT DATE: 3/16/2017
SIZE B
SCALE:
SHEET 1 OF 1
CONFIGURATION:
Default
REVISION
DRAWING NUMBER:
25014
TITLE
14 COMPONENTS
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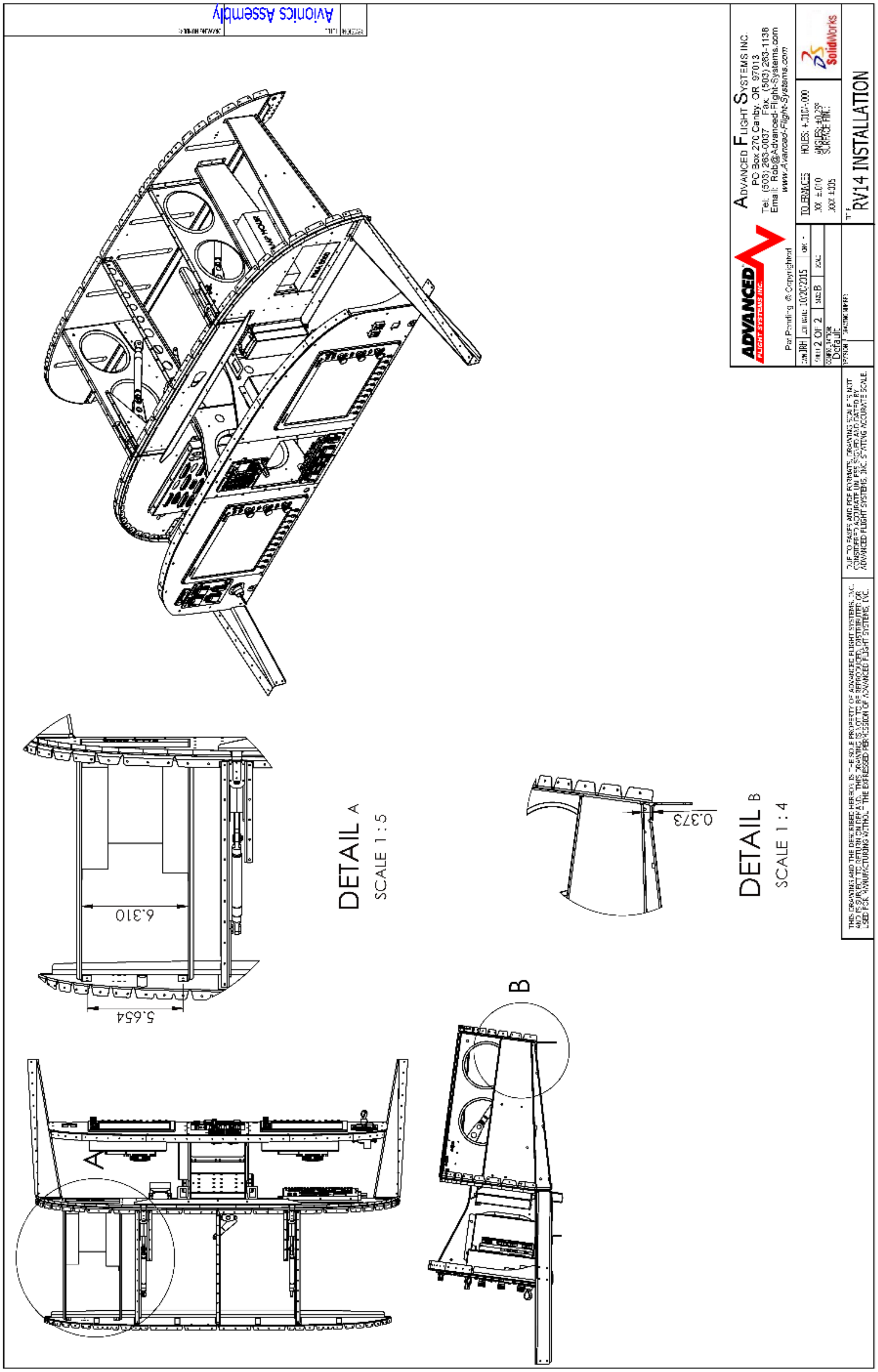
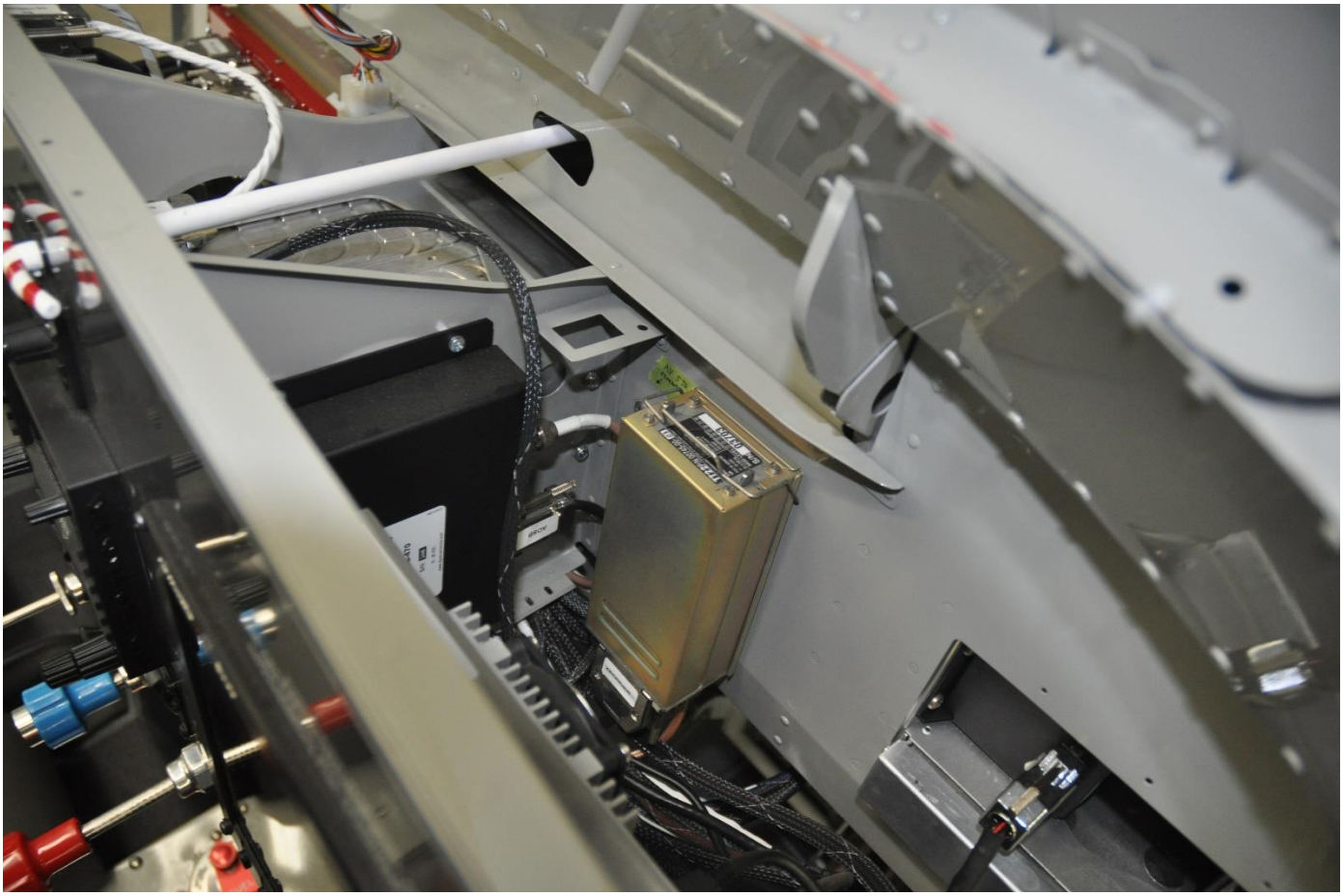
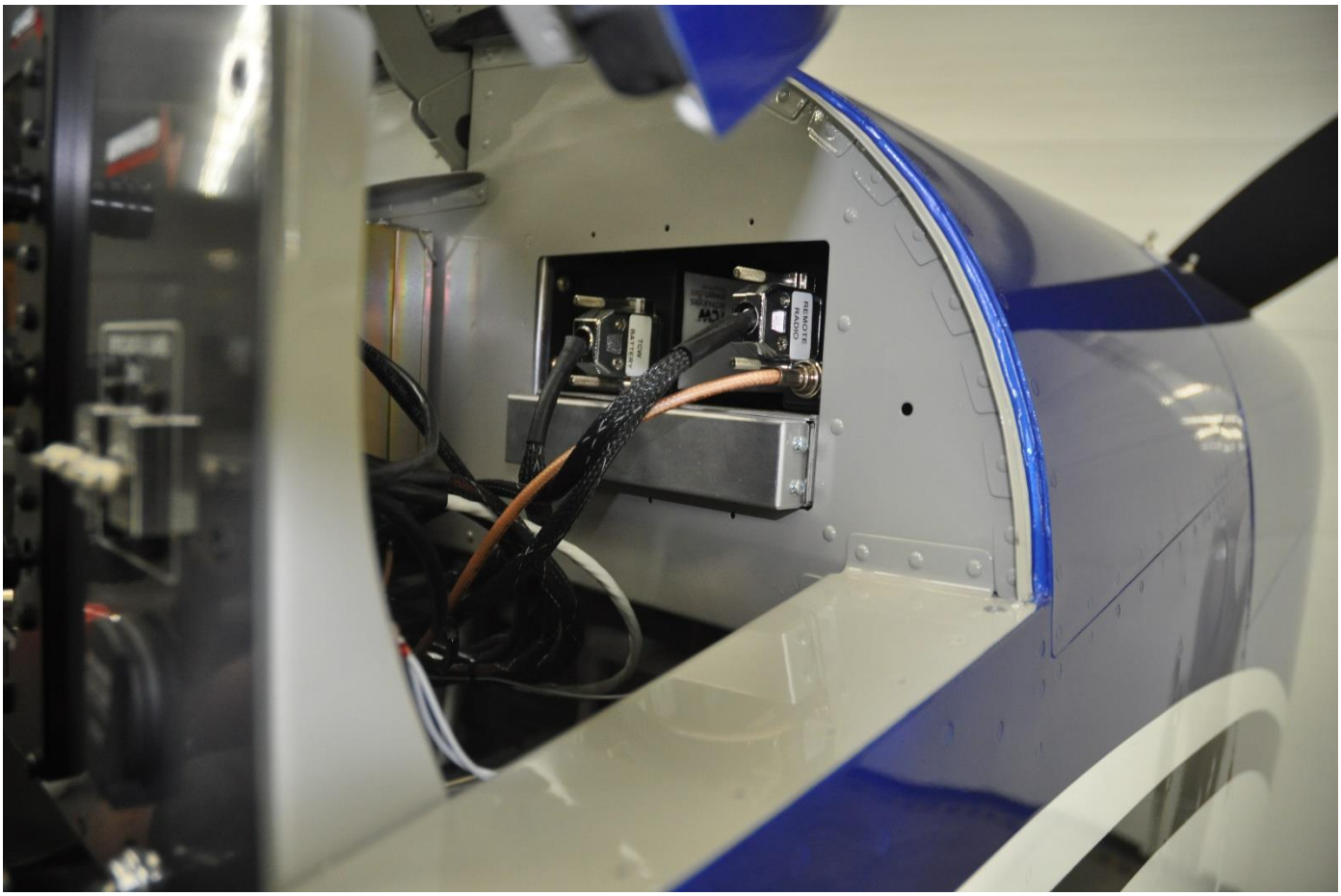
ADSB
BACKUP BATTERY
AUDIO PANEL
COM
EMS MODULE
ACM

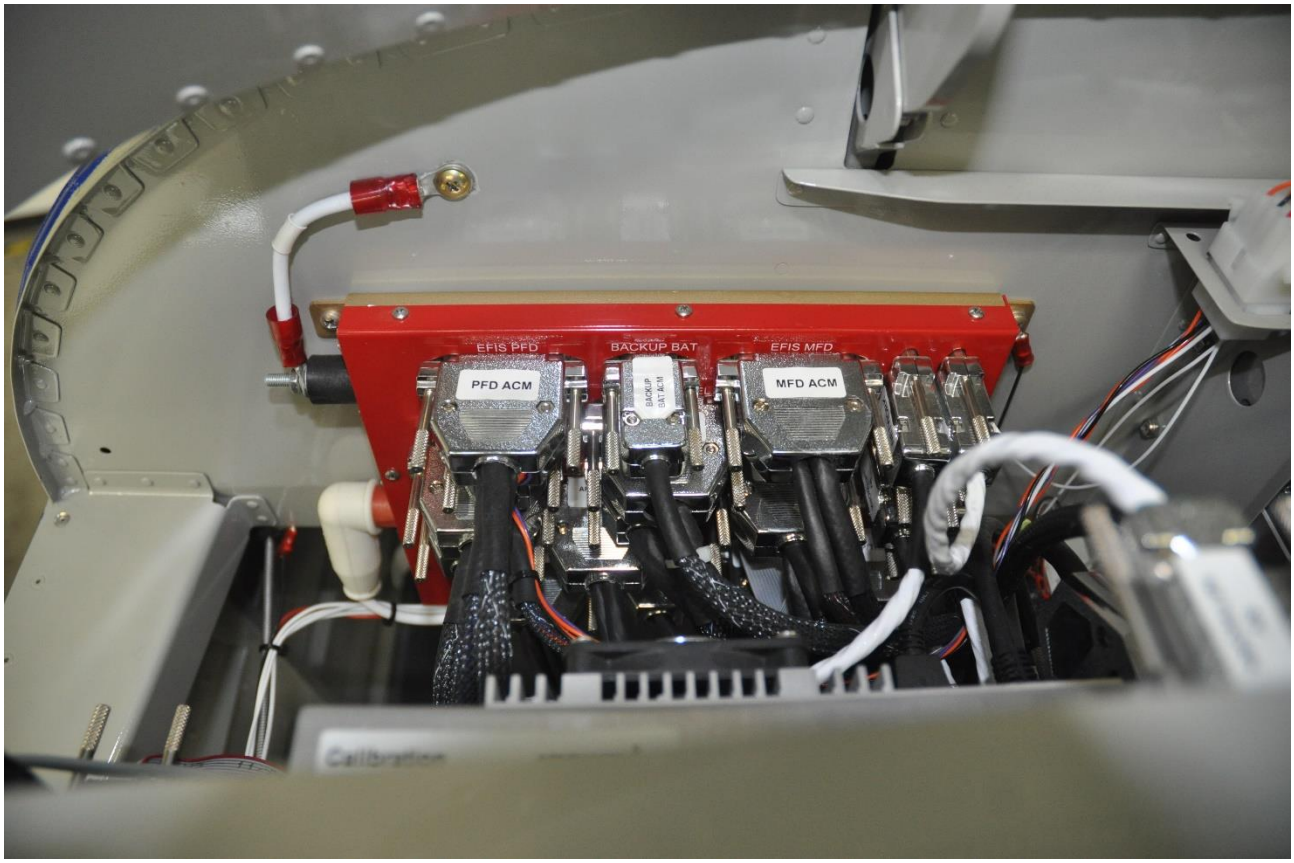

Avionics Assembly
ADVANCED FLIGHT SYSTEMS INC.
PO Box 270 Canby, OR 97013
Tel: (503) 263-0037 Fax: (503) 263-1138
Email: Rob@Advanced-Flight-Systems.com
www.Advanced-Flight-Systems.com
Pat Pending © Copyrighted
RV14 INSTALLATION
DETAIL A
SCALE 1 : 5
6.310
5.654
DETAIL B
SCALE 1 : 4
0.373
A
B




REMOTE RADIO

Advanced Control Module (ACM)

The P/N: 70050 ACM or 70080 ACM-ECB module mounts on the sub panel behind the EFIS PFD. You will need to drill the sub-panel using the ACM module as a template. The ACM module should be connected using QTY:4 10-32 x .5" screw, washer and nylon lock nut. You will also need to drill the sub-panel for the ACM ground wire, make sure you remove the paint for a good electrical contact using a 10-32 x .5" screw, washer and nylon lock nut.



- Connect the main power wire from the battery master relay to the red power lug on the ACM. The Van's supplied main power wire should have a ¼" (0.250") ring terminal with a molded plastic cover.
- Connect the ground power wire from the airframe ground to the black power lug on the ACM. The ACM main ground wire should have a #10 ring terminal with a molded plastic cover.

Do not over-torque the power terminal nuts, they are soft copper and will break if over-torqued.

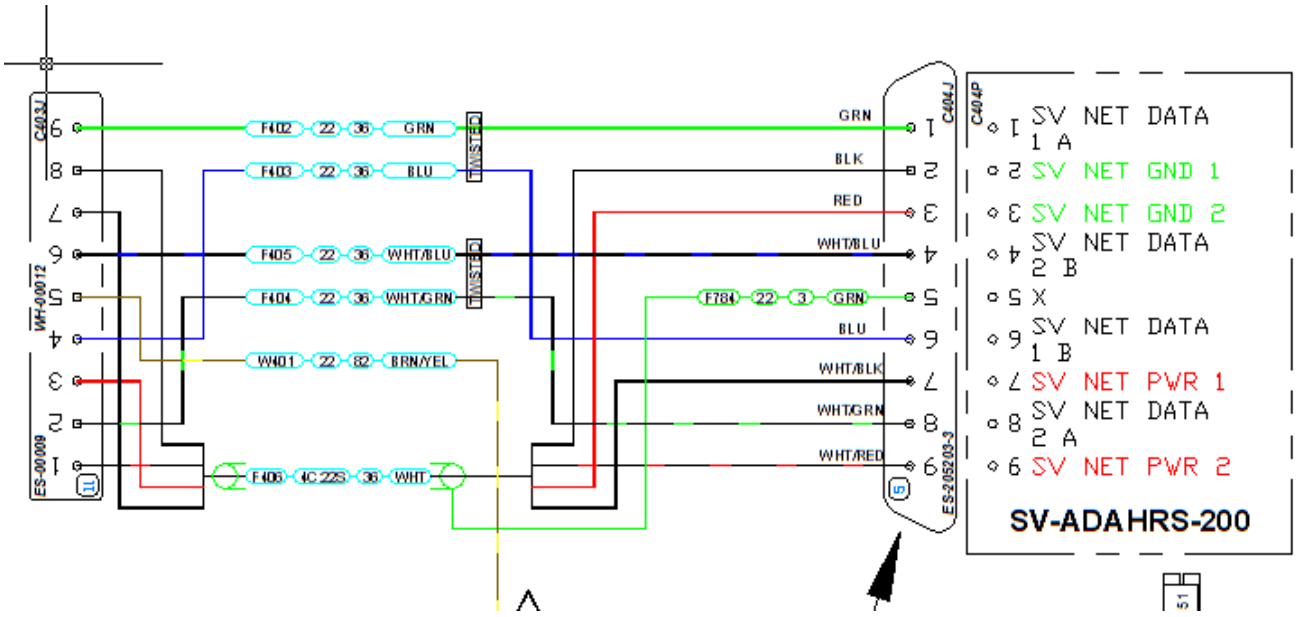
Red Main Power Terminal Max Nut Torque: 25 in-lbs

Black Main Ground Terminal Max Nut Torque: 19 in-lbs

RV-14 ADAHRS Mounting and Wiring

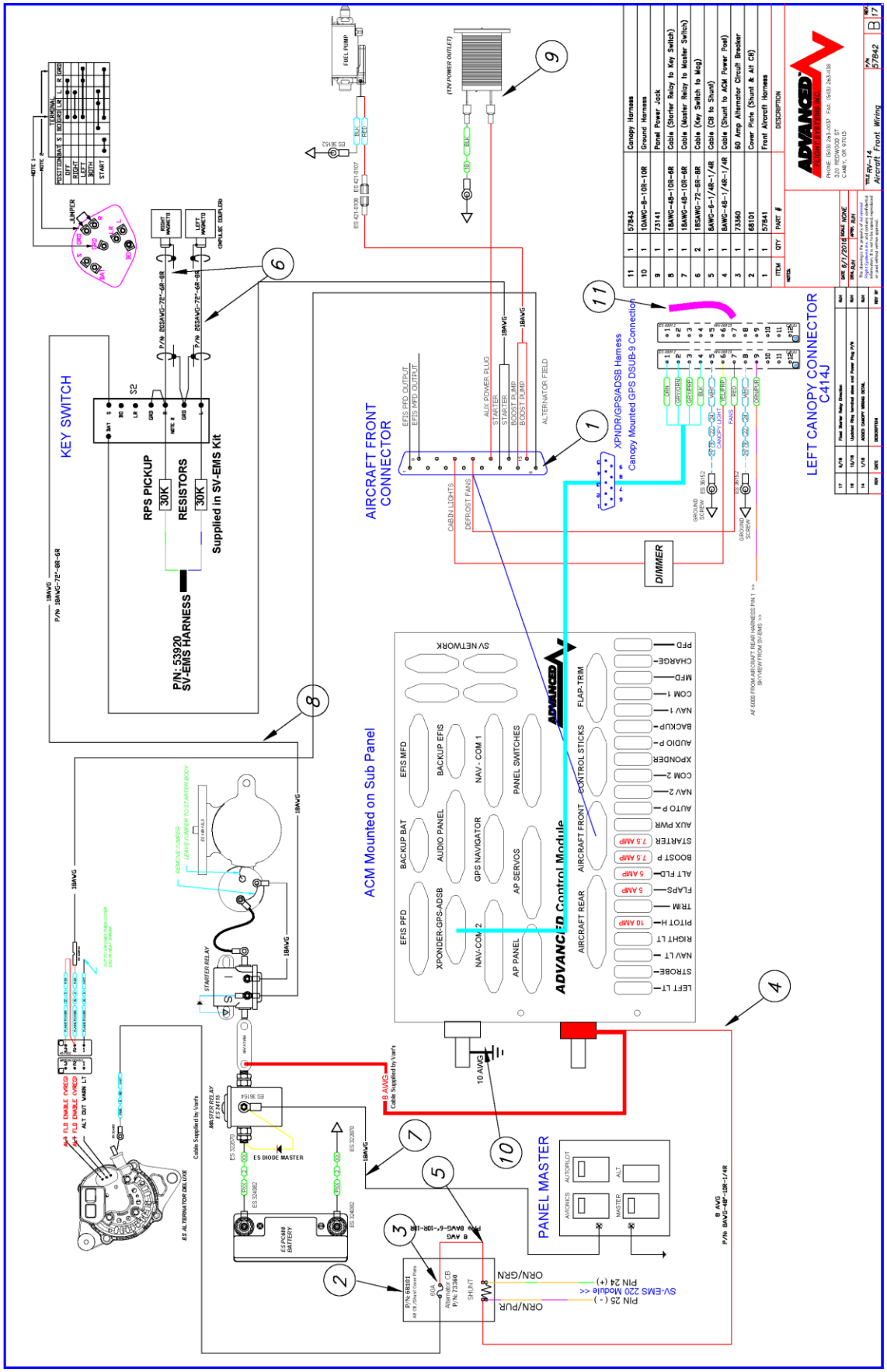
The RV-14 ADAHRS mounts in the left wing using the Van's supplied slide in mounting bracket. The Van's ADAHRS bracket has a built-in tab that will hold the ADAHRS into the slide in mounting bracket. The ADAHRS should slide into the bracket slots and not have any slop or looseness. If the ADAHRS is loose in the bracket you will need to shim the ADAHRS with UHMW tape. If you are using a dual ADAHRS system you should bolt the backup ADAHRS to the primary ADAHRS using the AFS supplied Dual ADAHRS mounting kit and instructions. When the ADARS is properly installed the PITOT/STATIC ports should point forward.

The ADAHRS wires are supplied in the Van's wing kit, you will need to insert the pre-wired female pins into the AFS supplied DSUB 9 female connector and connector Shell.

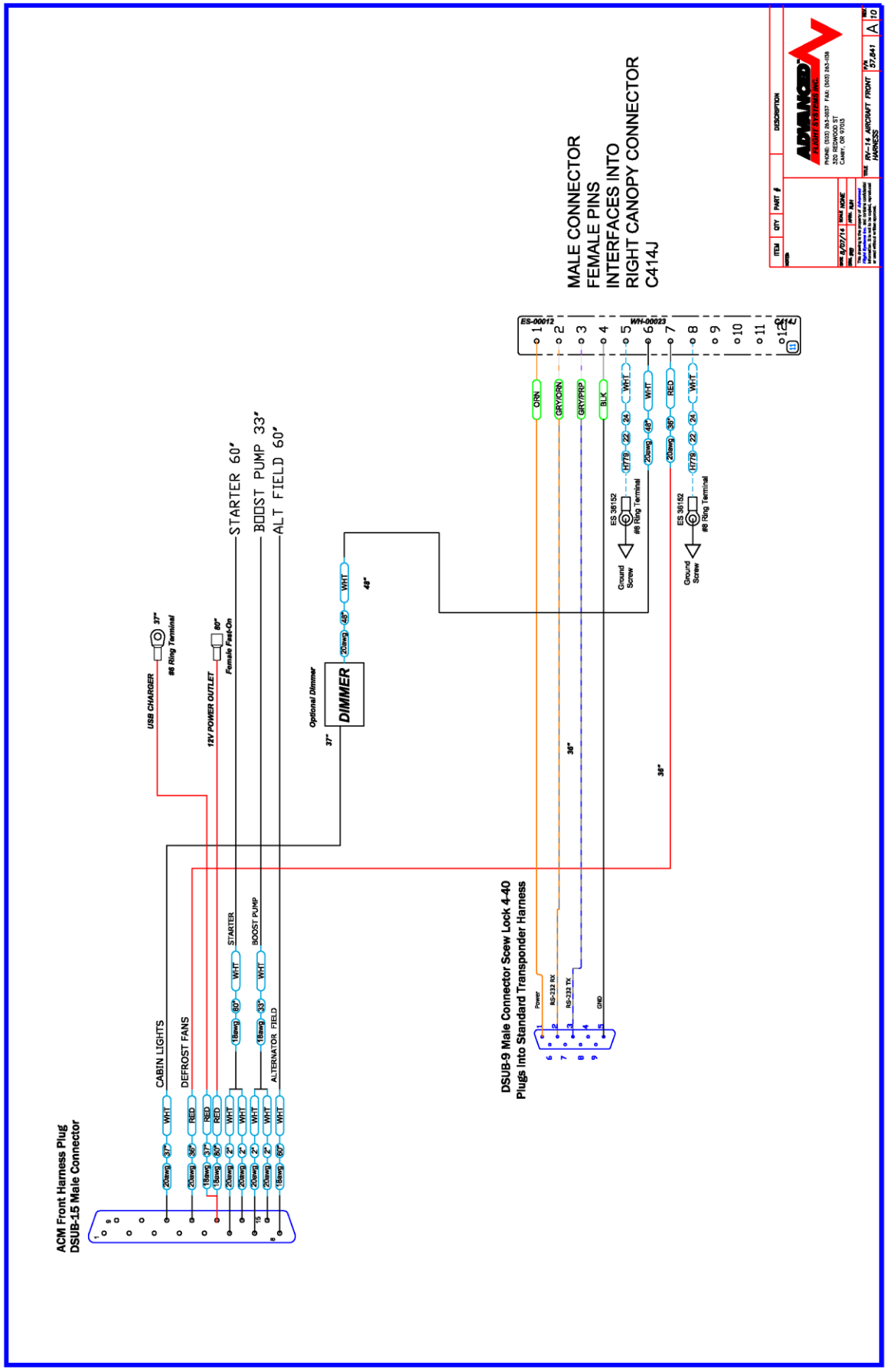


RV-14 Aircraft Front Wiring (P/N: 57842)

Complete the aircraft front wiring using the following drawing and items.



57841 RV-14 Front Harness

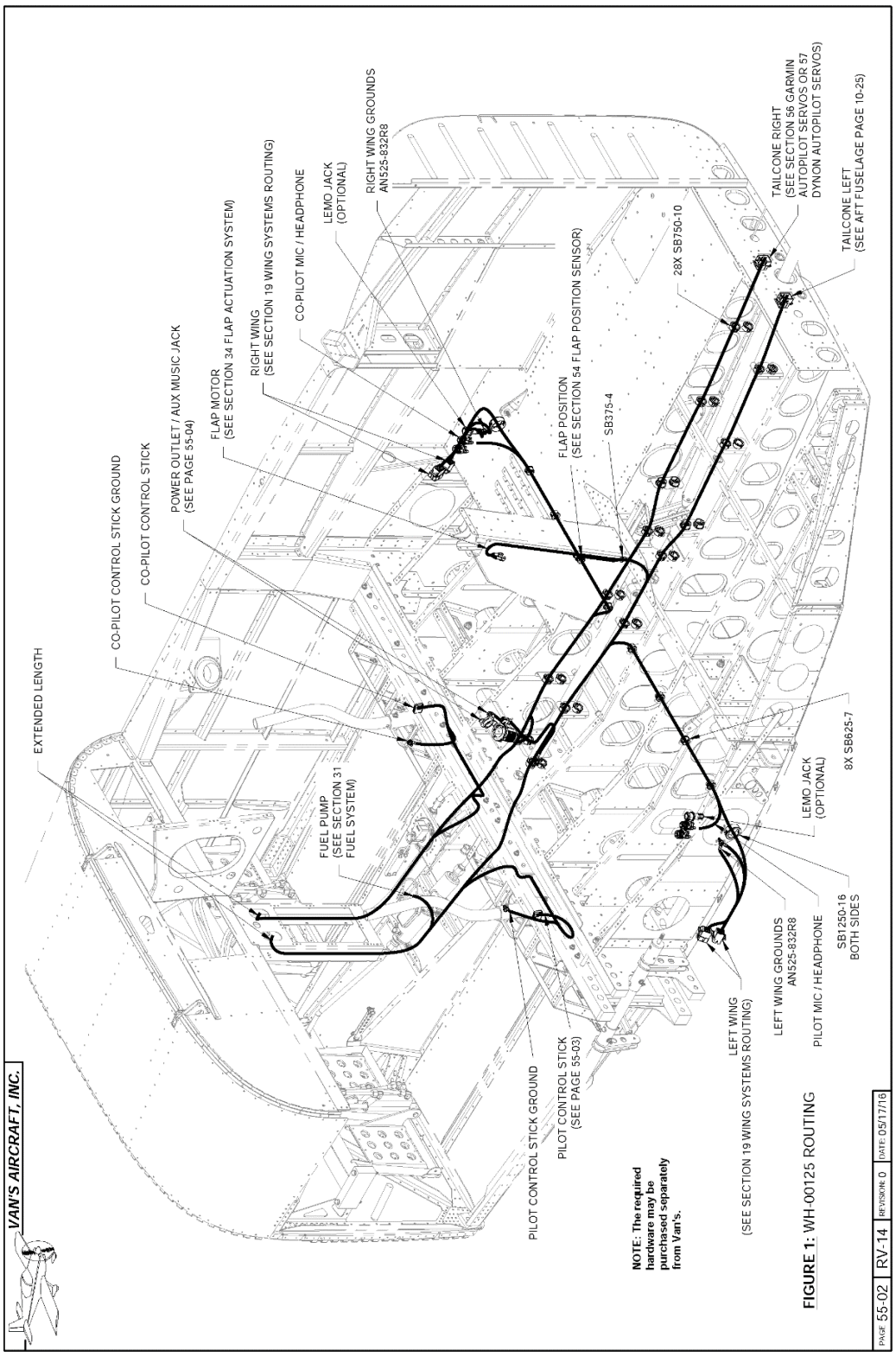


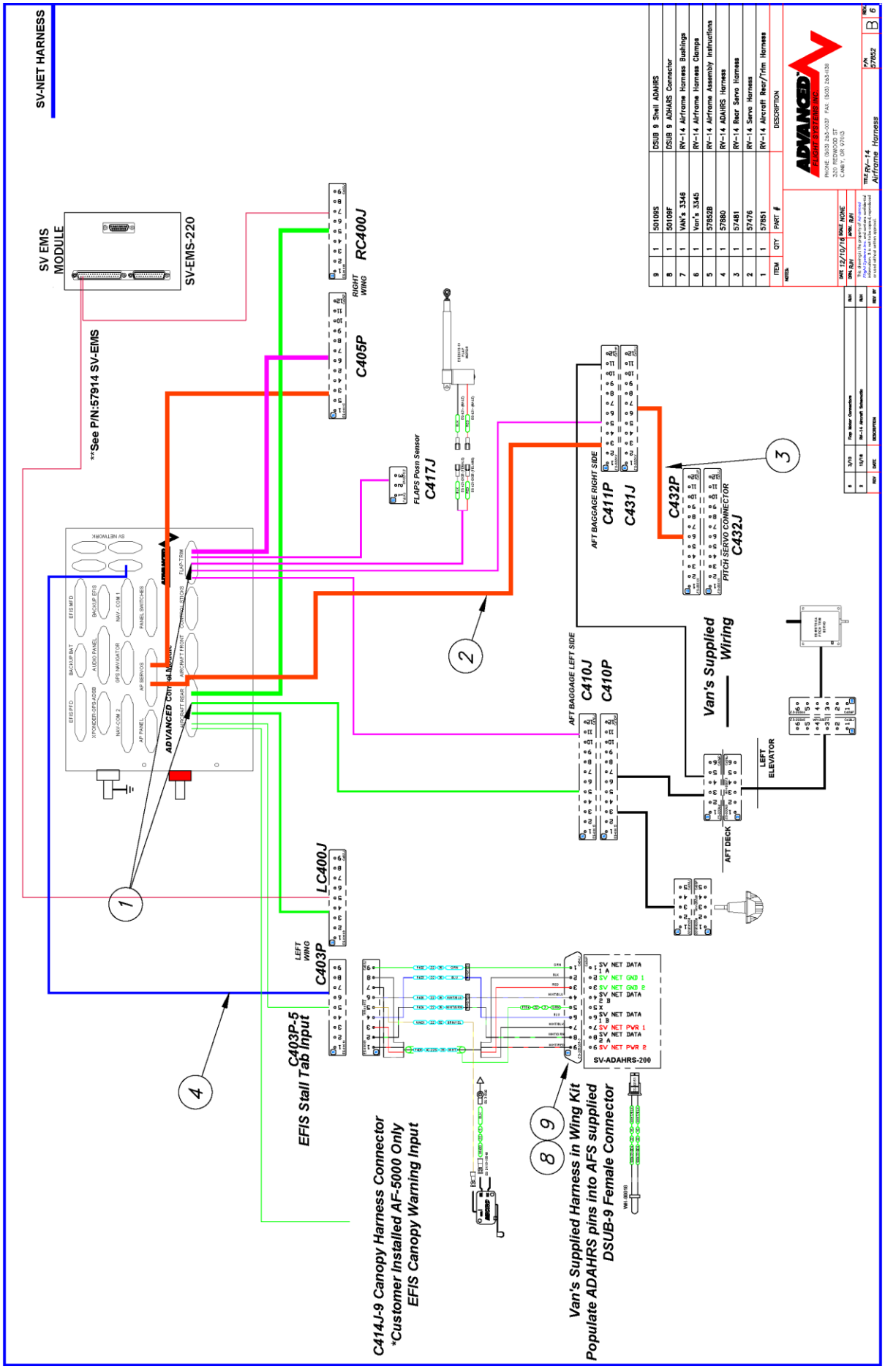
RV-14 Airframe Harnesses (P/N: 57852)

Install the AFS supplied RV-14 airframe harness

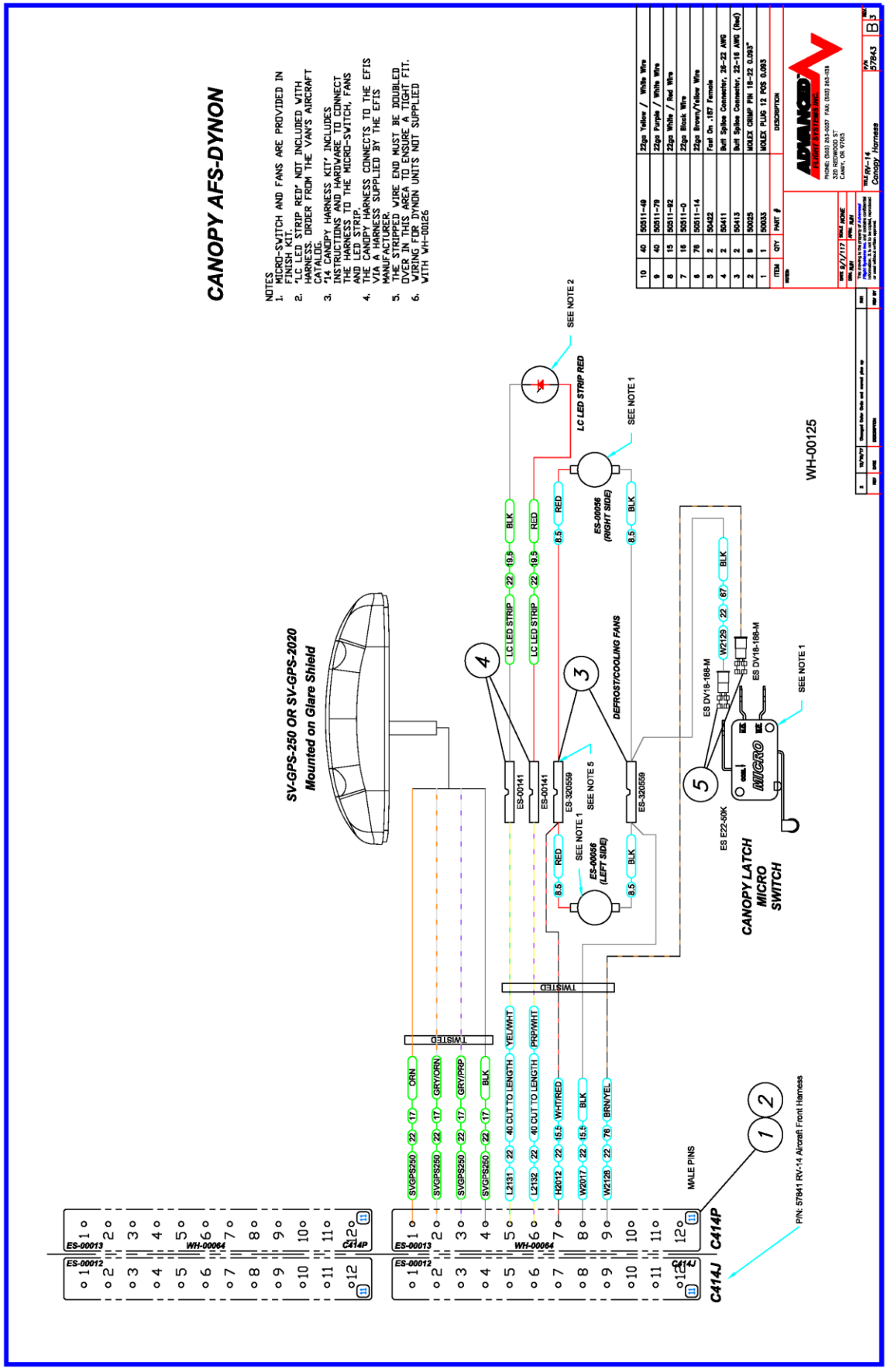
Do not purchase or use Van's RV-14 Airframe Harness

P/N: 57852AFS for AF-5600 install or P/N: 57852HDX for a Skyview HDX install. Start in the middle of the fuselage and work toward the ACM connector end (Aircraft Rear, AP Servo, Flap Trim, ADAHRS SVN-Net) routing the harness using Van's instructions Section 55-02 RV-14 Harness install. You will need to use the supplied Van's airframe harness bushing kit P/N: Van's 3346

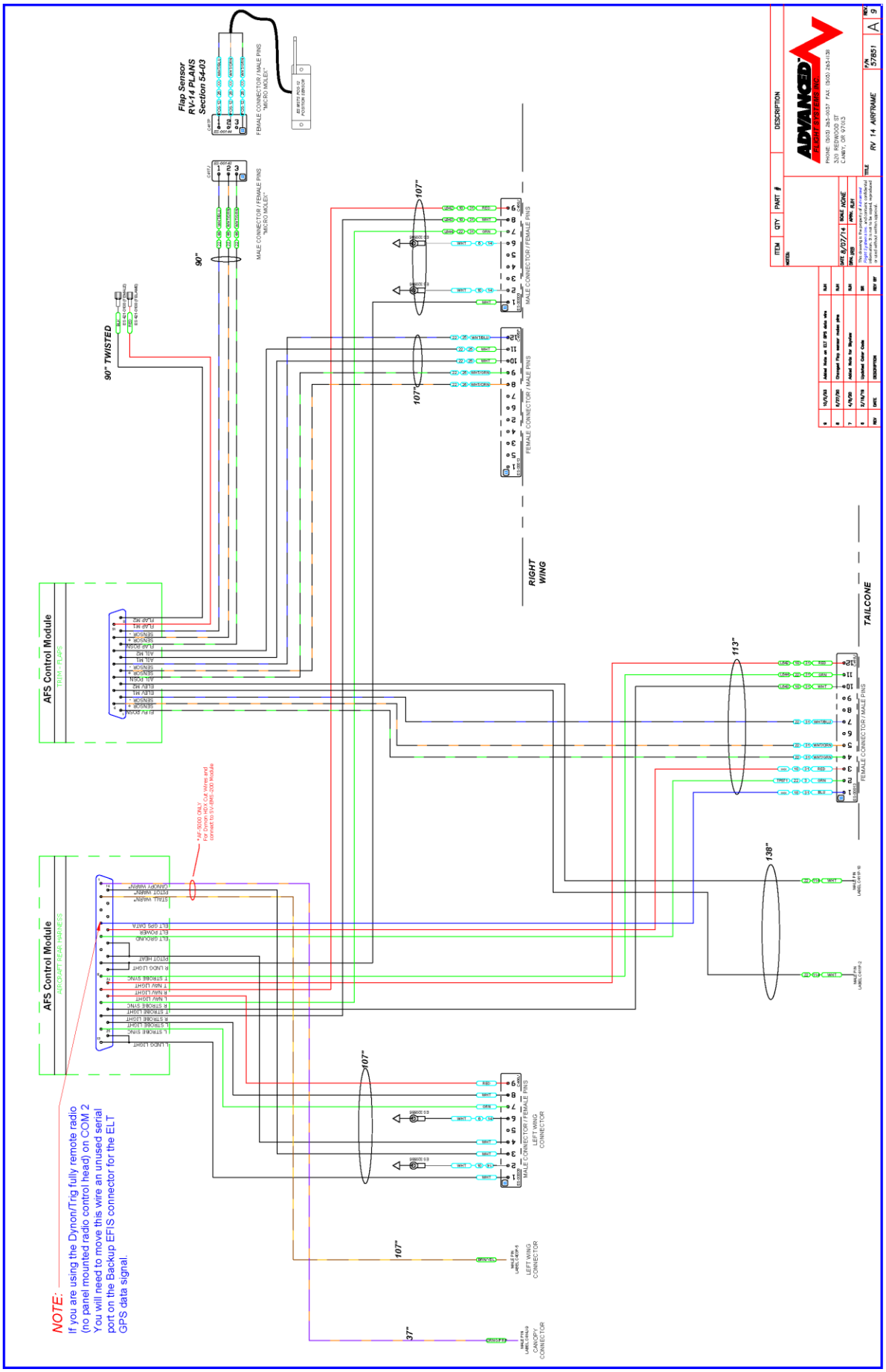



SV-NET HARNESS
SV EMS MODULE
SV-EMS-220
**See P/N:57914 SV-EMS
RC400J
RIGHT WING
C405P
FLAPS Posn Sensor
C417J
AFT BAGGAGE RIGHT SIDE
C411P
C431J
C432P
PITCH SERVO CONNECTOR
C432J
AFT BAGGAGE LEFT SIDE
C410J
C410P
Van's Supplied Wiring
LEFT ELEVATOR
AFT DECK
LC400J
LEFT WING
C403P
EFIS Stall Tab Input
SV-ADAHRS-200
C414J-9 Canopy Harness Connector
*Customer Installed AF-5000 Only
EFIS Canopy Warning Input
Van's Supplied Harness in Wing Kit
Populate ADAHRS pins into AFS supplied
DSUB-9 Female Connector
1
2
3
4
8
9

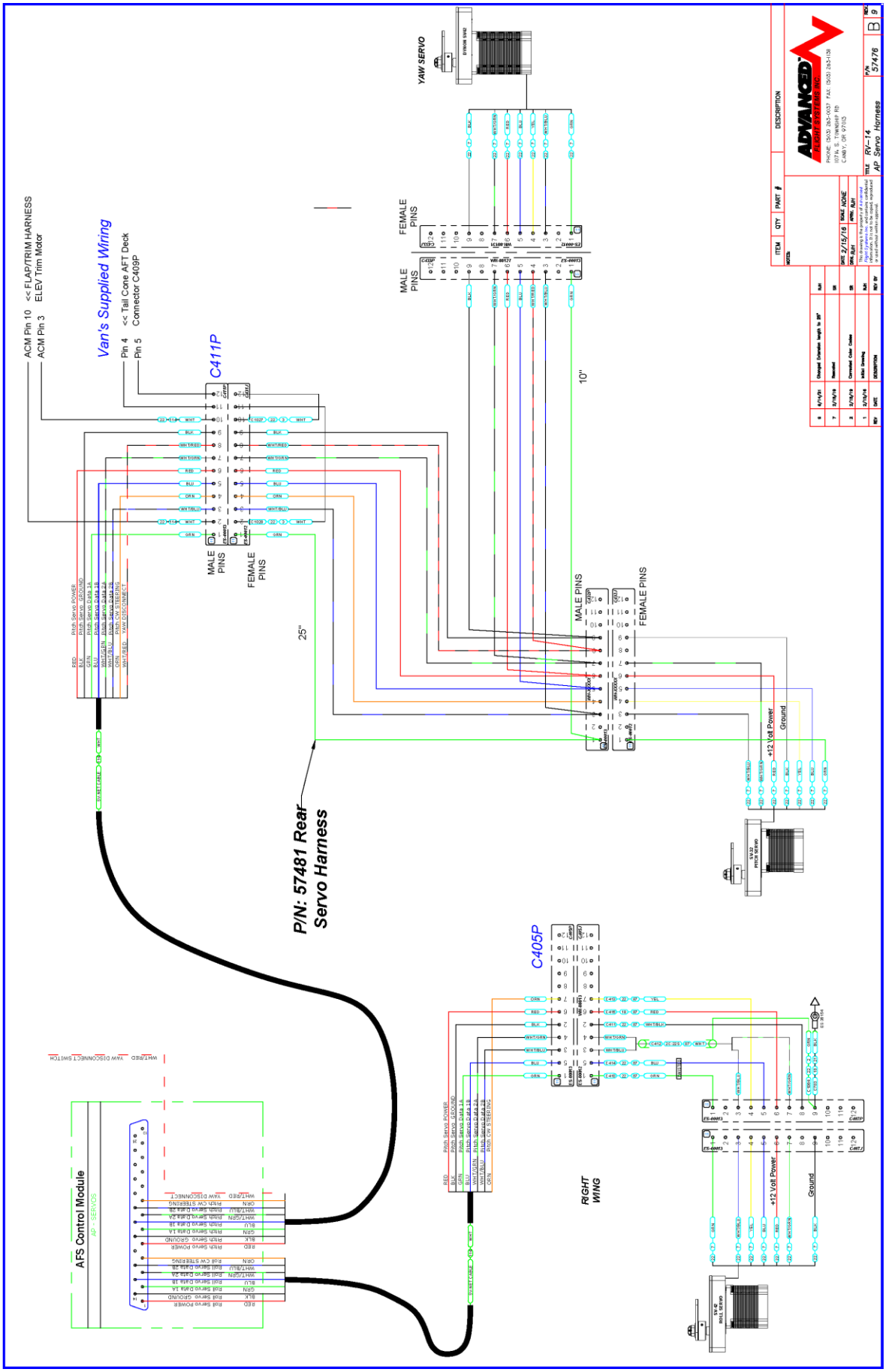
57843 RV-14 Canopy Harness



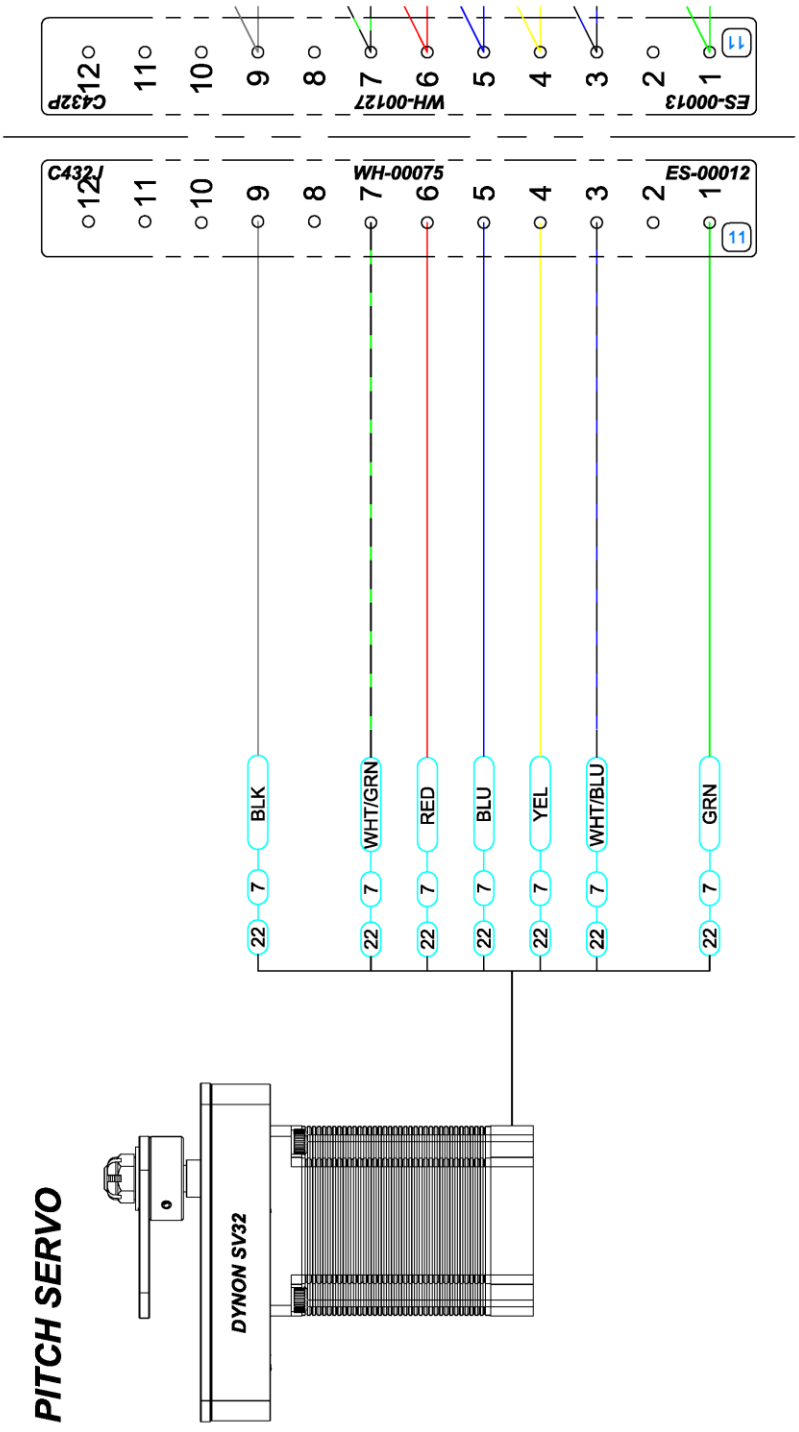
57851 RV-14 Aircraft Rear / Trim Harness



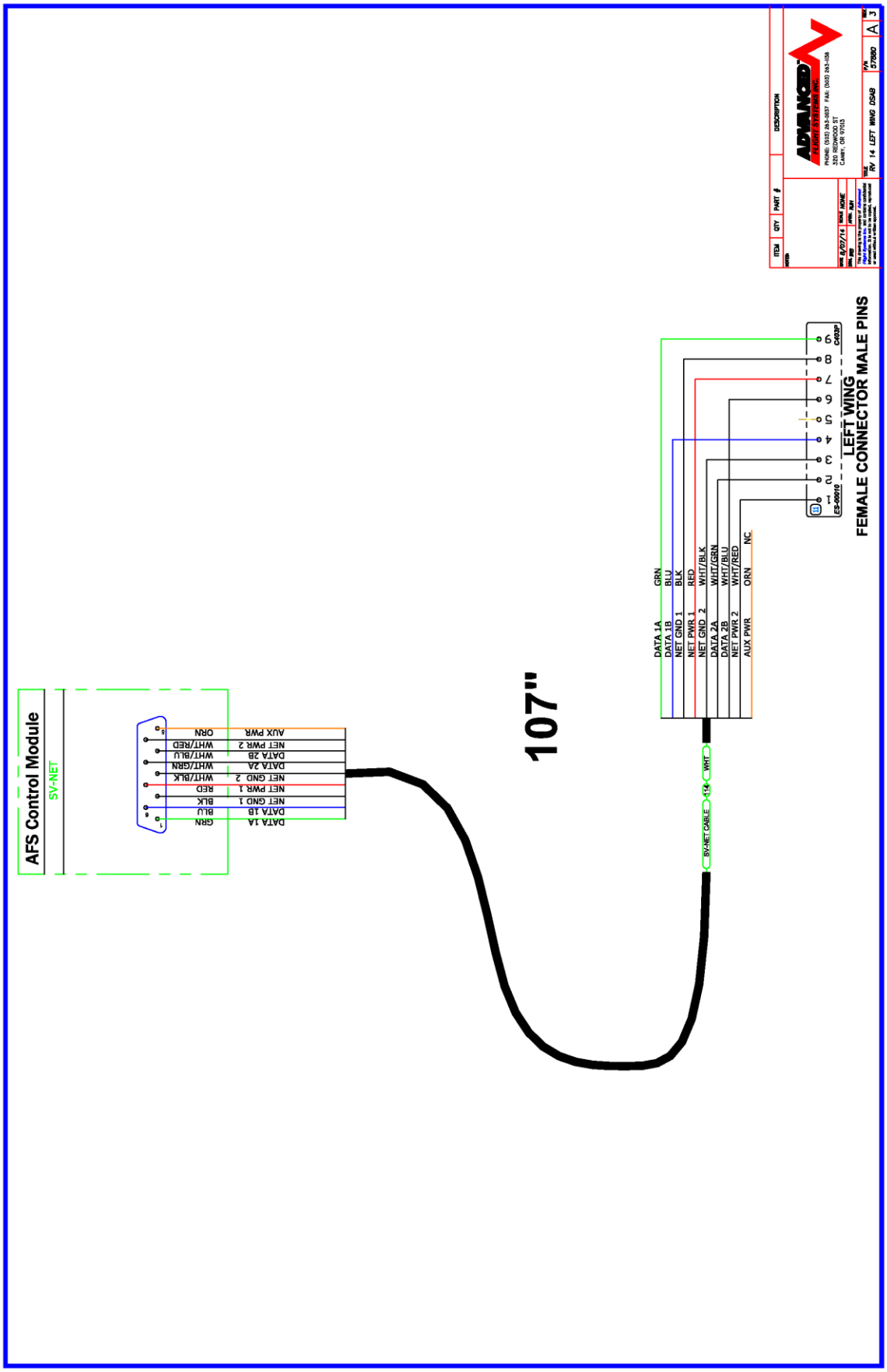
57476 RV-14 Servo Harness



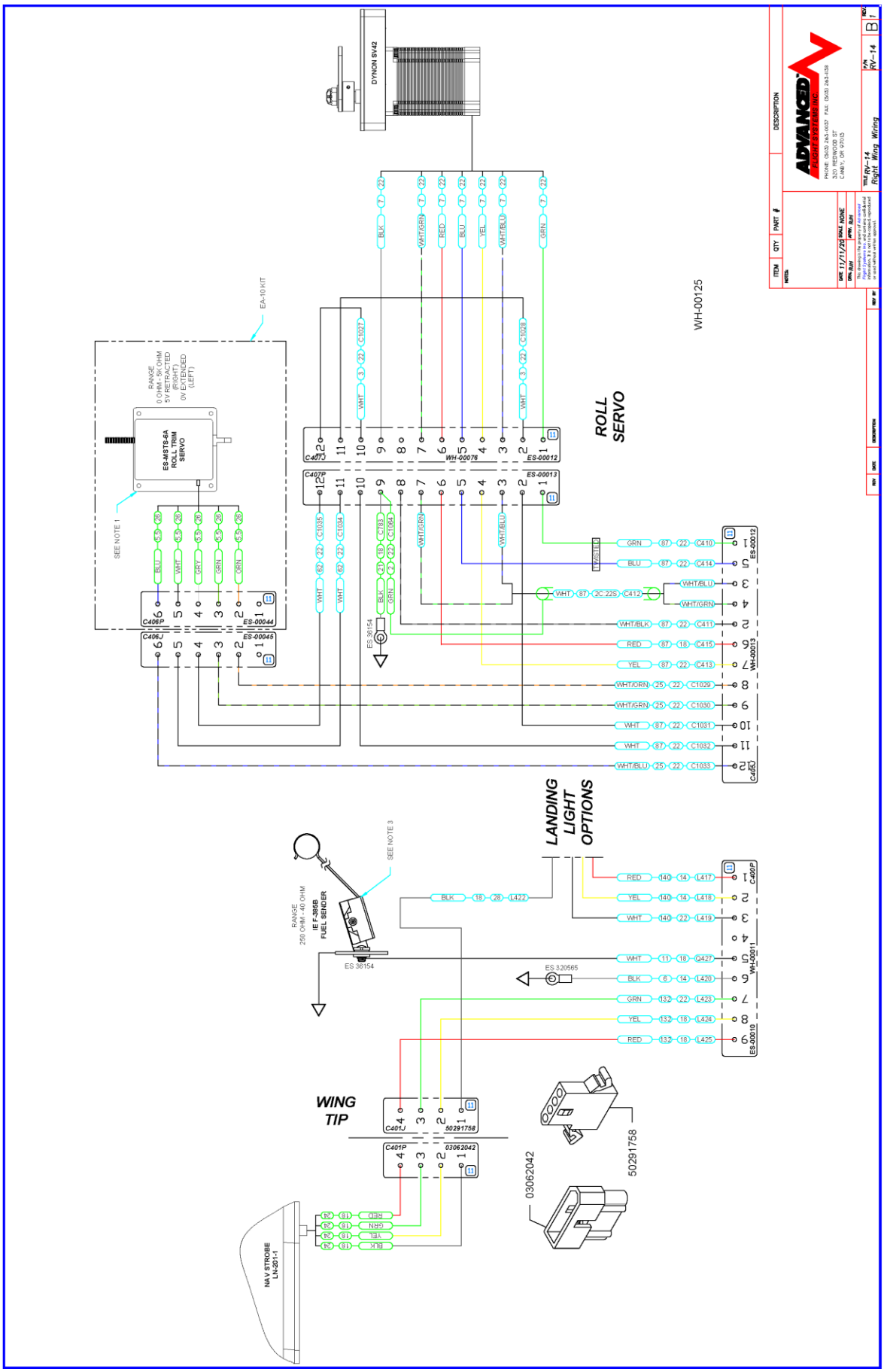
RV-14 Pitch Servo Wiring



57880 RV-14 ADAHRS Fuselage Harness



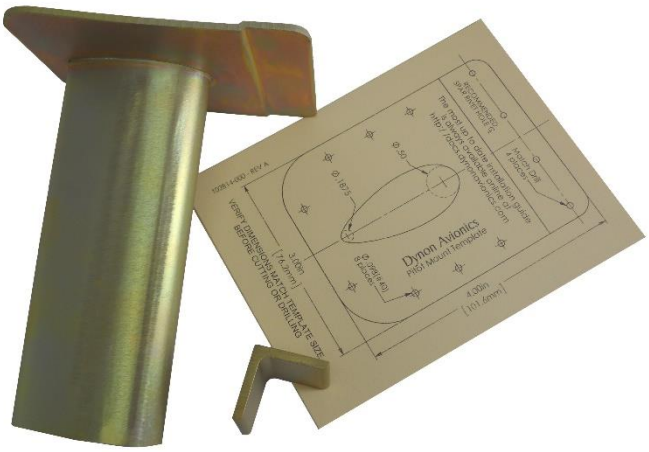
RV-14 Right Wing Roll Servo and Trim Servo Wiring



RV-14 Heated Pitot Tube

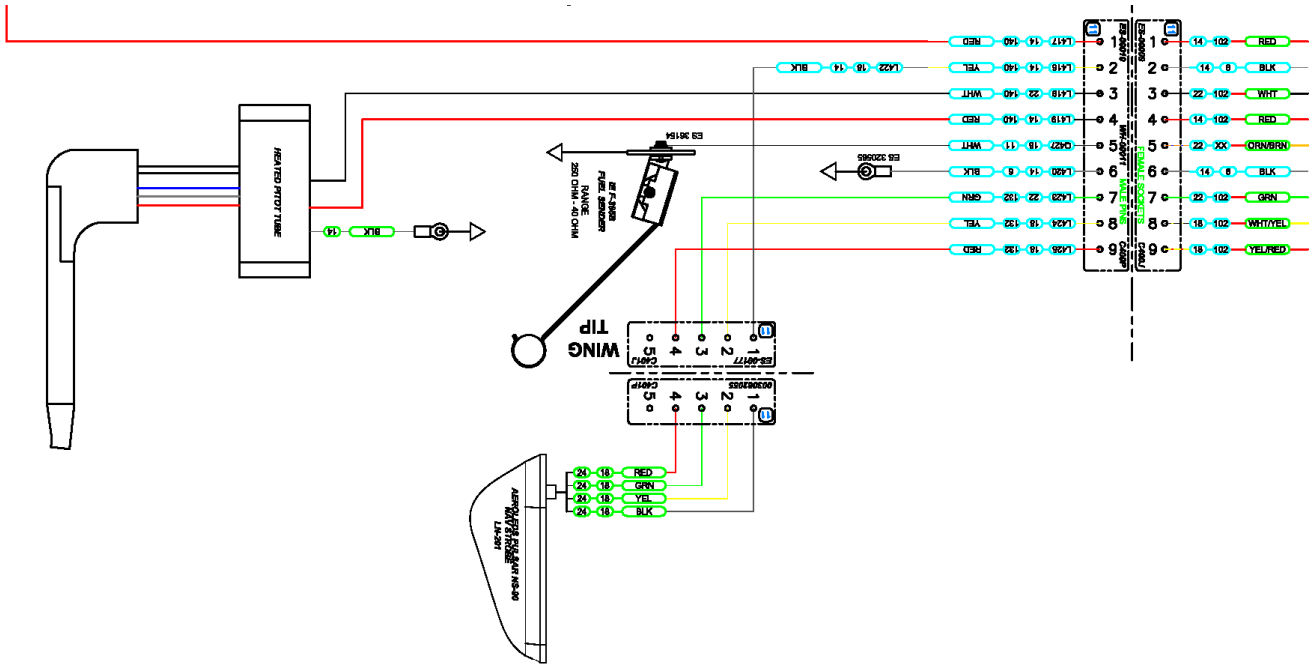
The Dynon heated pitot tube is mounted in the left wing using the Dynon Pitot Mast P/N: 102813-000

- Mount the controller box to one of the wing ribs near the pitot tube mounting location.



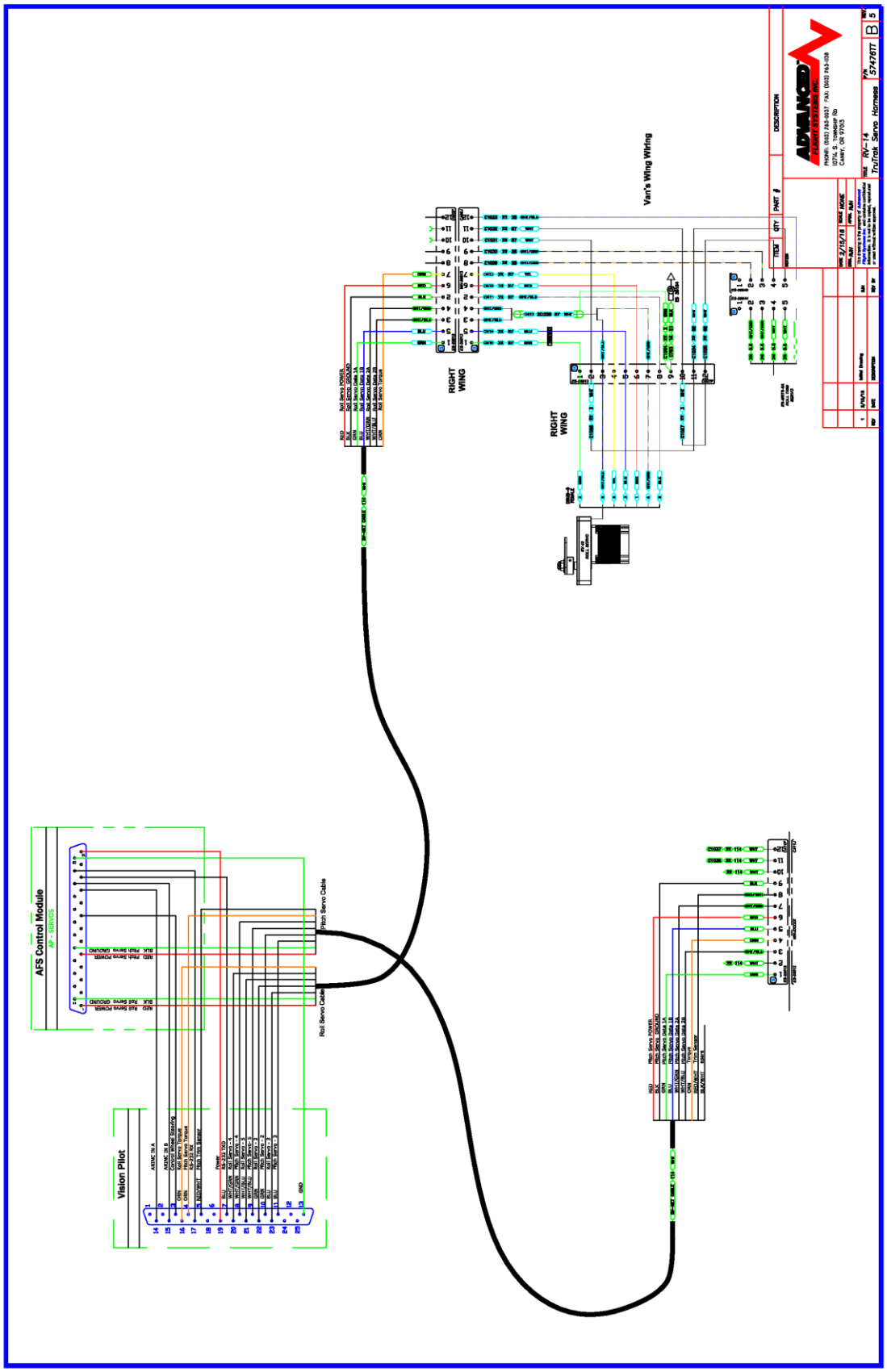
- Extend the Pitot Tube controller wires and connect to the Left Wing C400P Molex connector using the following:

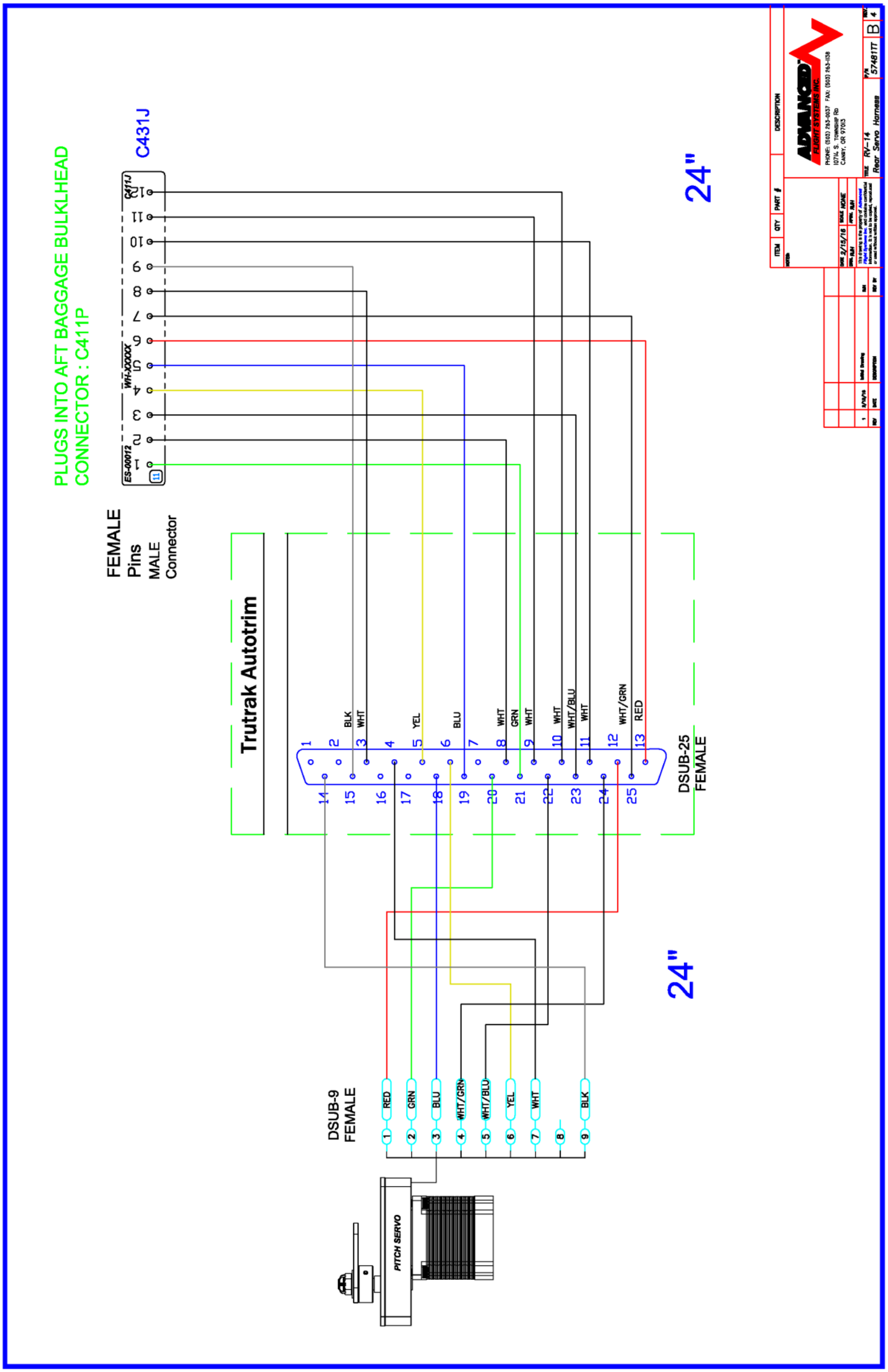
Pitot Controller	Description	Wire Size	C400P Male Pin
Red	+12V Power	#14	4
Black	Ground #14		Locally grounded using ring terminal
White	Signal	#22	3



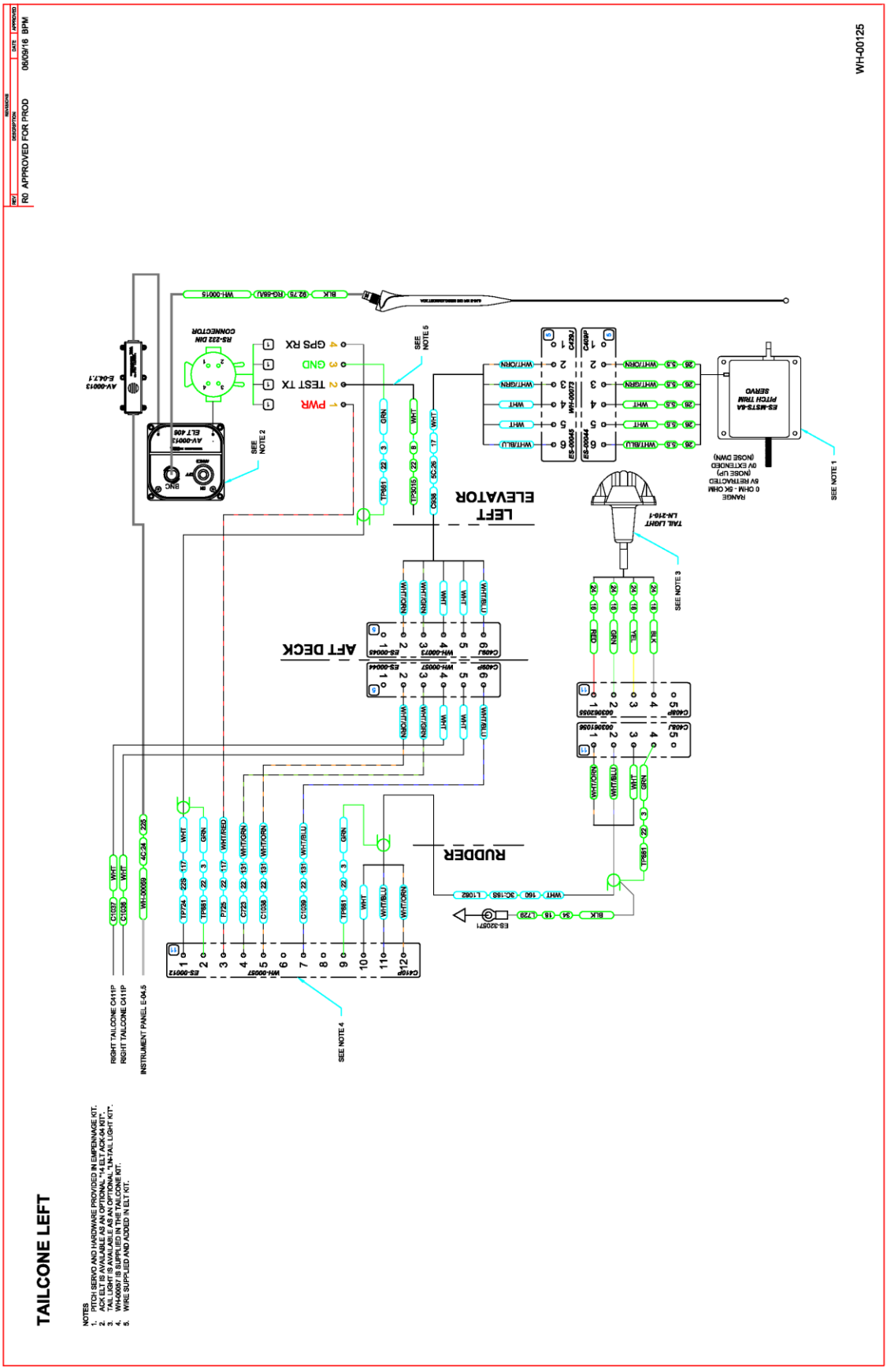
The Pitot line and AOA line should be connected to the Dynon ADAHRS using the Dynon Pitot/Static Plumbing Kit P/N: 102628-000

RV-14 Optional TruTrak Autopilot Wiring




PLUGS INTO AFT BAGGAGE BULKHEAD
CONNECTOR : C411P
C431J
ES-00012
WH-XXXXX
C411J
FEMALE
Pins
MALE
Connector
Trutrak Autotrim
DSUB-25
FEMALE
DSUB-9
FEMALE
PITCH SERVO
24"
24"
RED
GRN
BLU
WHT/GRN
WHT/BLU
YEL
WHT
BLK
RV-14
Rear Servo Harness
57481TT

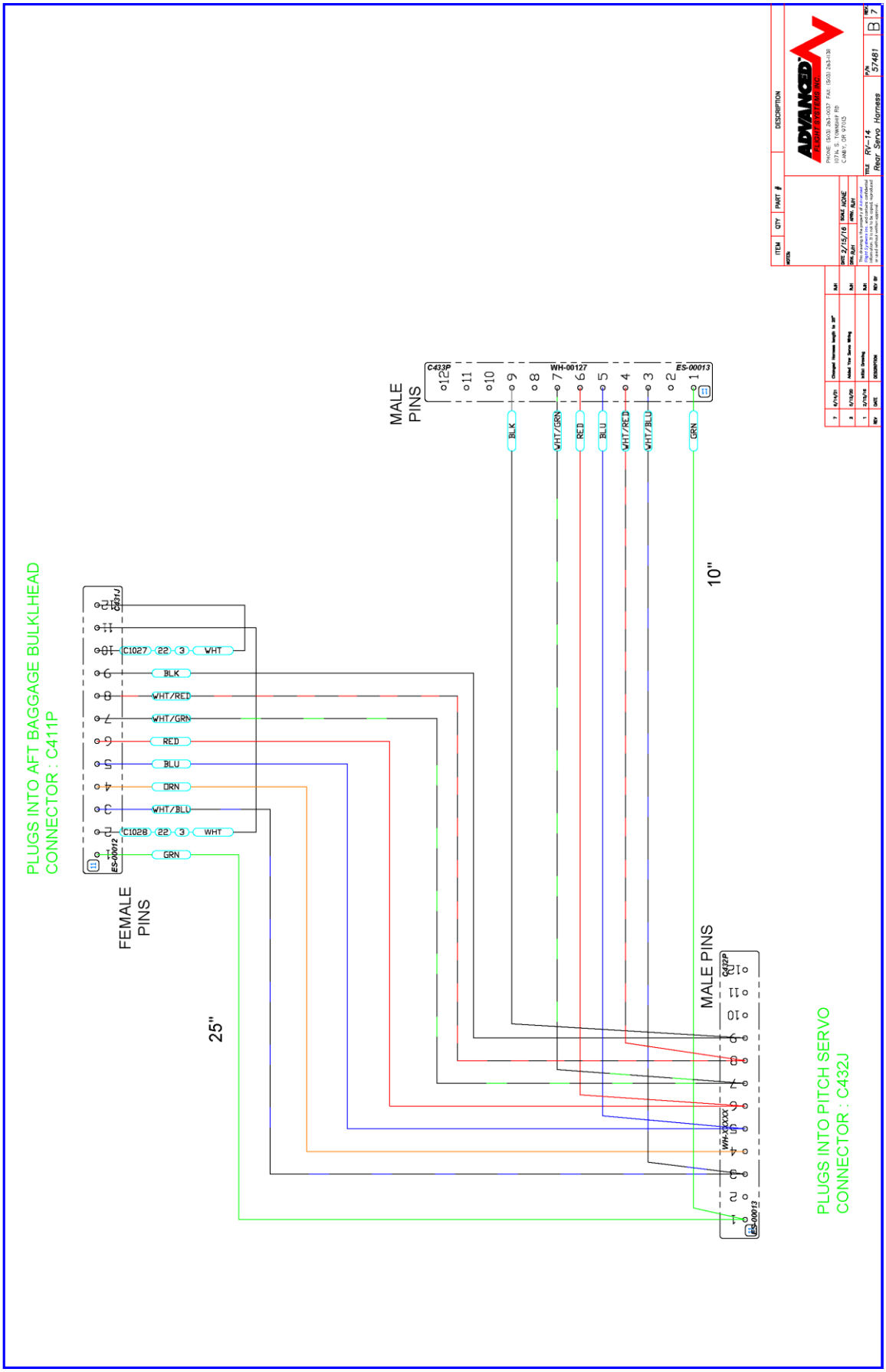
RV-14 Van's Tailcone Left Wiring



RV-14 Pitch Trim Wire Routing Table

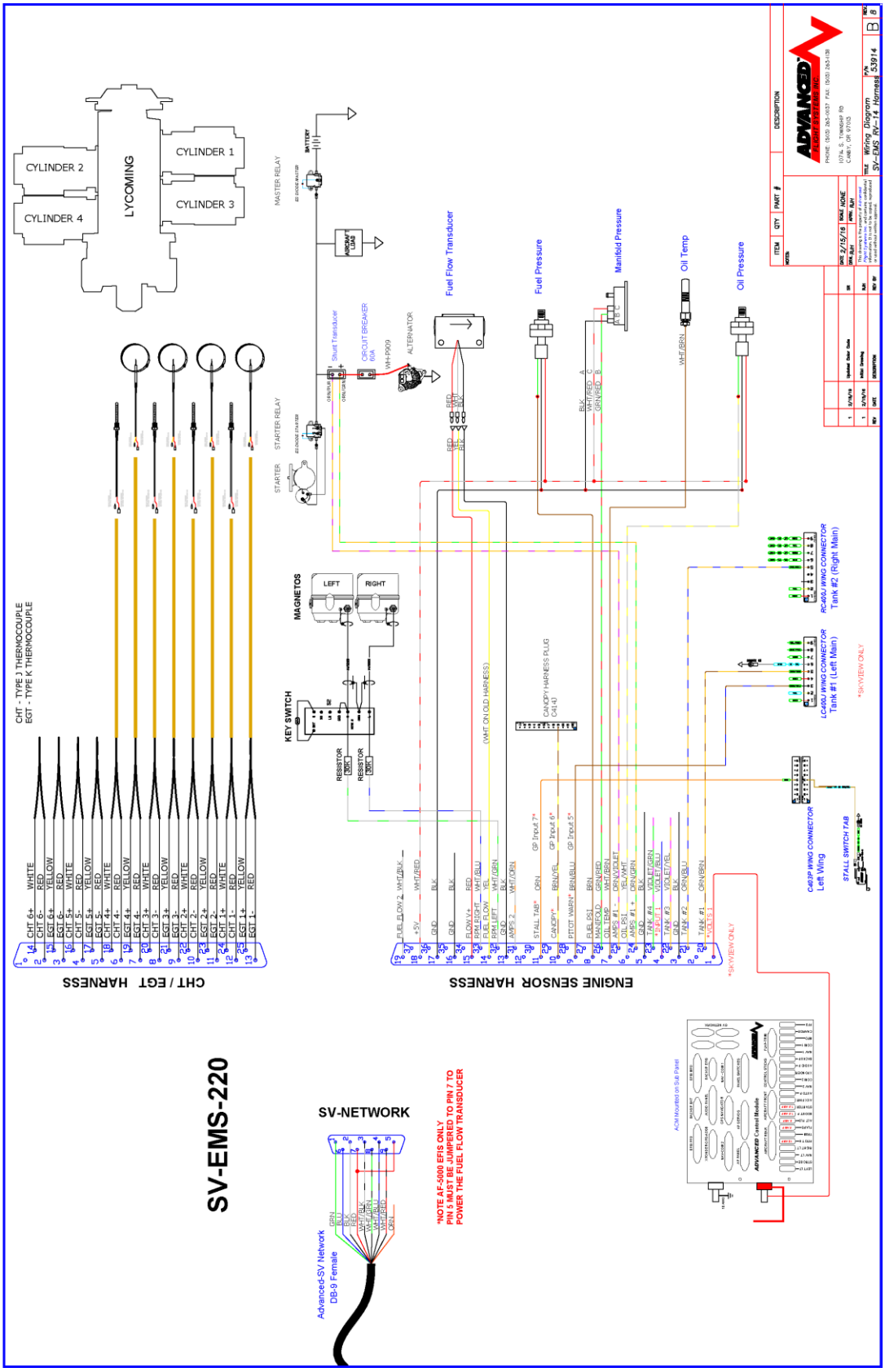
	RV-14 Pitch Trim Servo Wiring									
	ACM									
	Flap-Trim	C411P	C431J	C431J	C411P	C409P	C409J	C429J	C409P	Trim Motor
M1	10	2	2	11	11	4	4	4	4	White
M2	3	10	10	12	12	5	5	5	5	White
				C410J	C410P	C409P	C409J	C429J	C409P	Trim Motor
+5V	9			5	5	2	2	2	2	ORN/WHT
POSN	1			4	4	3	3	3	3	GRN/WHT
Ground	2			7	7	6	6	6	6	BLU/WHT

RV-14 AFS P/N: 57481 Rear Servo Harness

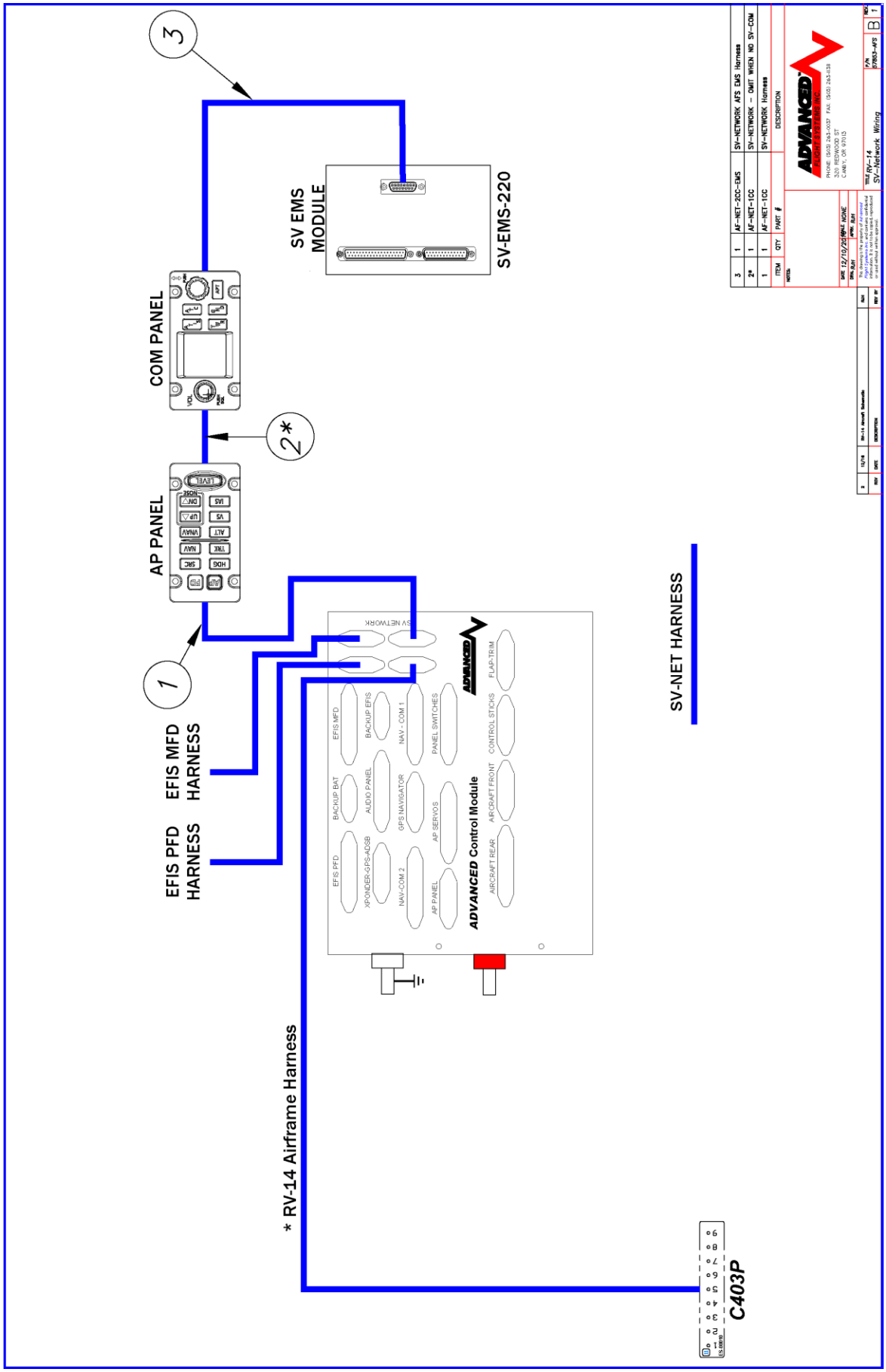


RV-14 EMS-220 Harness Install (P/N: 53914)

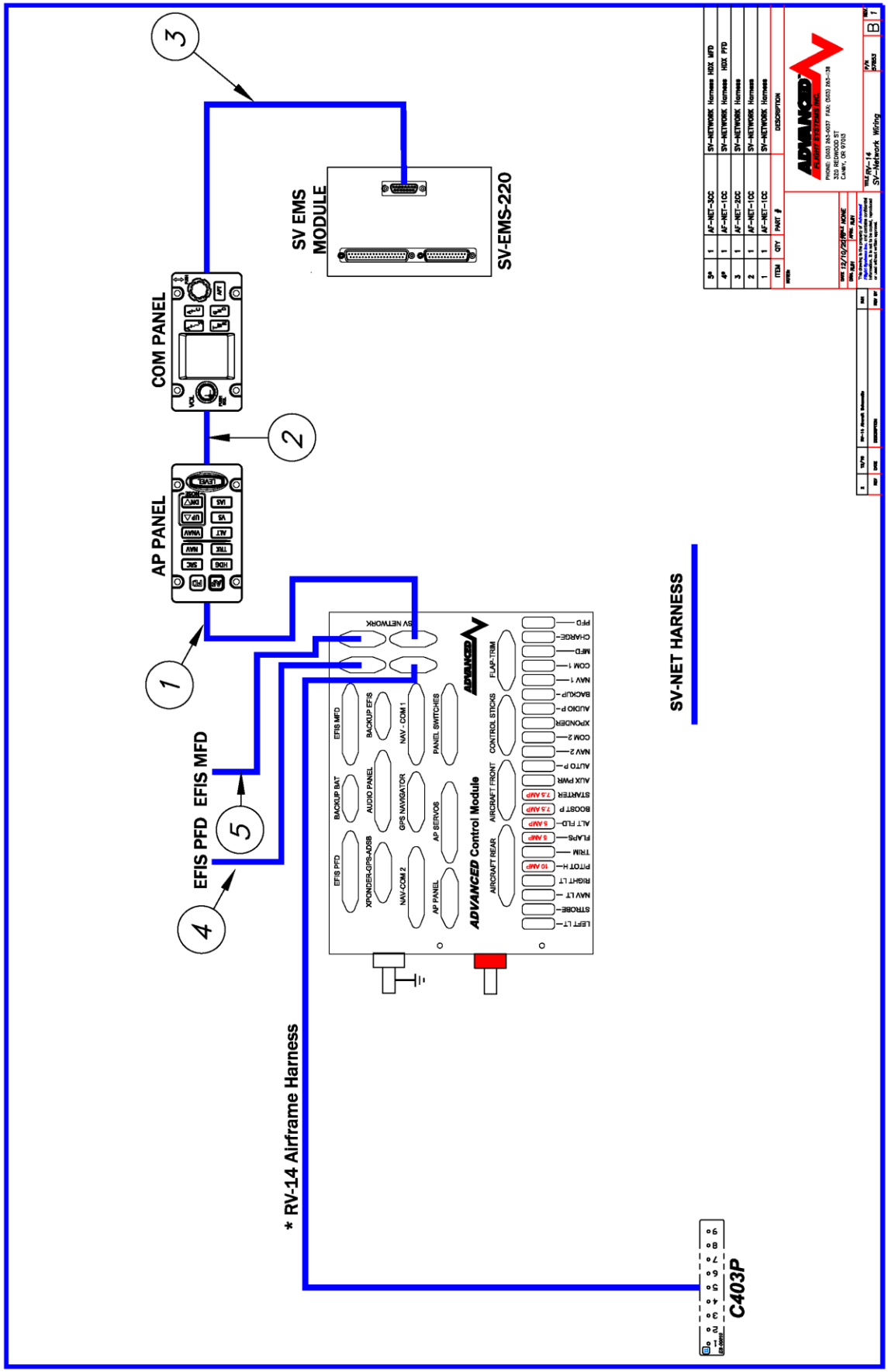
If you are installing a Skyview EFIS you will need to wire the SV-EMS input pins (9,10,11) to the RV-14 airframe harness near the ACM connectors. An AF-5600 system uses the EFIS inputs for (Canopy, Stall Tab, and Pitot Heat warning).



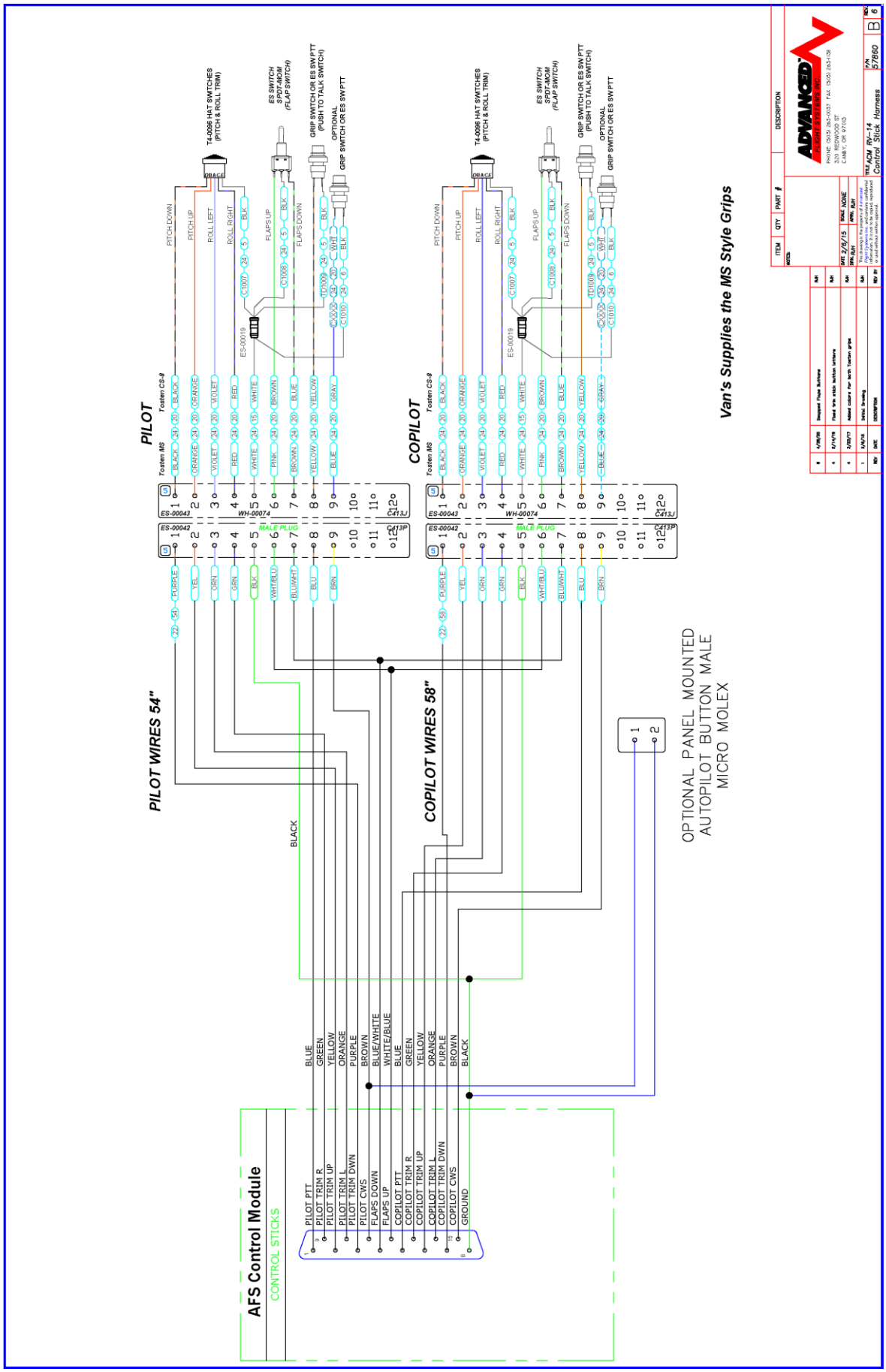
RV-14 AFS SV-Network Wiring (P/N: 57853-AFS)



RV-14 HDX SV-Network Wiring (P/N: 57853-HDX)

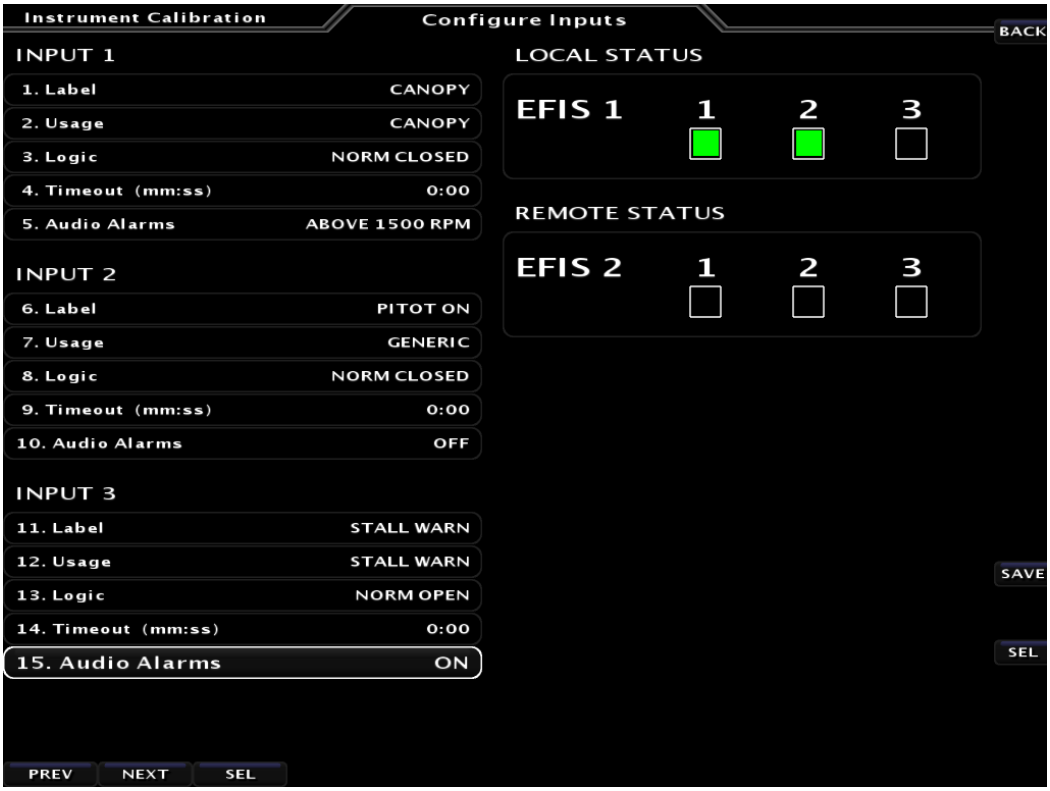


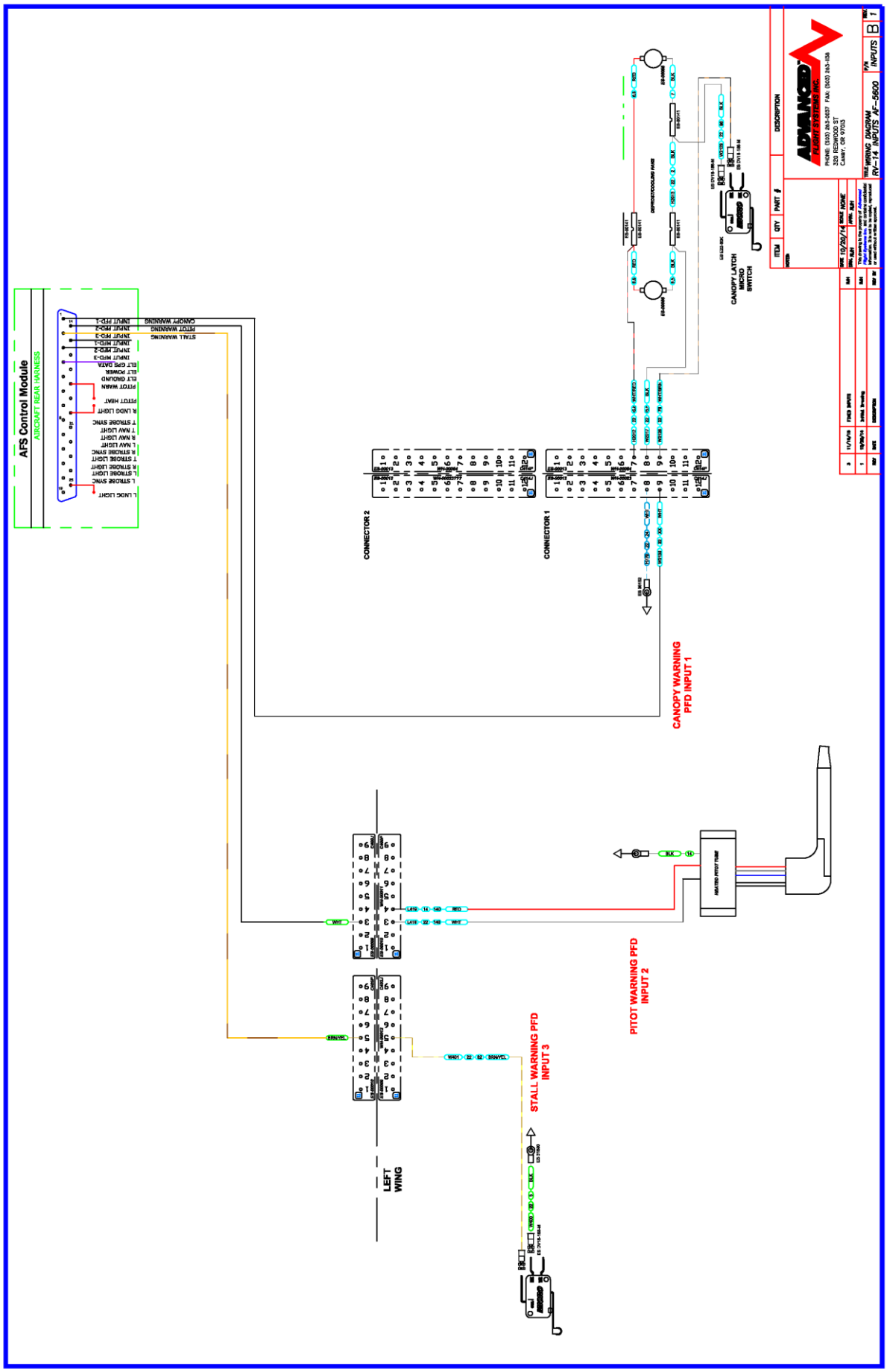
RV-14 Control Stick Wiring (P/N: 57860)



RV-14 Input Wiring and Configuration (AF-5000)

The RV-14 uses the EFIS PFD inputs to monitor the Canopy Latch, Pitot Heat and wing mounted stall tab. The inputs are wired to the ACM aircraft rear harness and can be tested in the EFIS PFD Configure Inputs page in calibration.




AFS Control Module
AIRCRAFT REAR HARNESS
CANOPY WARNING
PITOT WARNING
STALL WARNING
CONNECTOR 2
CONNECTOR 1
CANOPY LATCH MICRO SWITCH
CANOPY WARNING PFD INPUT 1
PITOT WARNING PFD INPUT 2
STALL WARNING PFD INPUT 3
LEFT WING
RV-14 INPUTS AF-5860

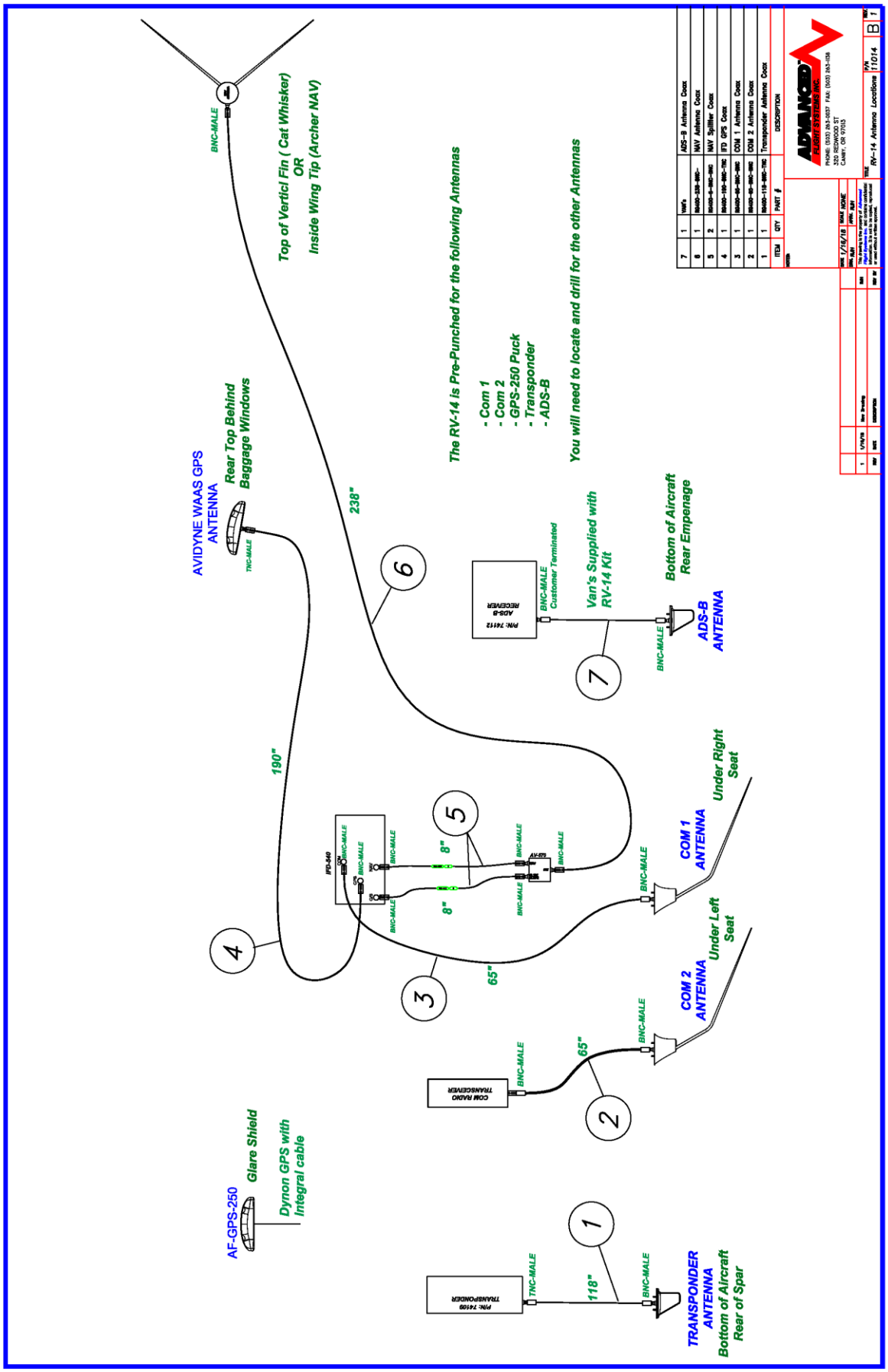
RV-14 Input Wiring and Configuration (Skyview)

The Skyview EFIS inputs cannot be used to monitor the Canopy, Pitot Heat or Stall Tab so you will need to connect the inputs from the RV-14 airframe harness to the SV-EMS harness. The RV-14 airframe harness should have three labeled wires to connect to the same color wires in the SV-EMS harness.

Function	Pin	Color	Input #	RV-14 Connector	Pin
Canopy Latch	10	Brown/Yellow	GP6	C414J	9
Stall Tab	11	Orange	GP7	C403P	5
Pitot Warning	9	Brown/Blue	GP5	LC400J	3

Using the Skyview Inputs Configuration menu you will need to configure the inputs

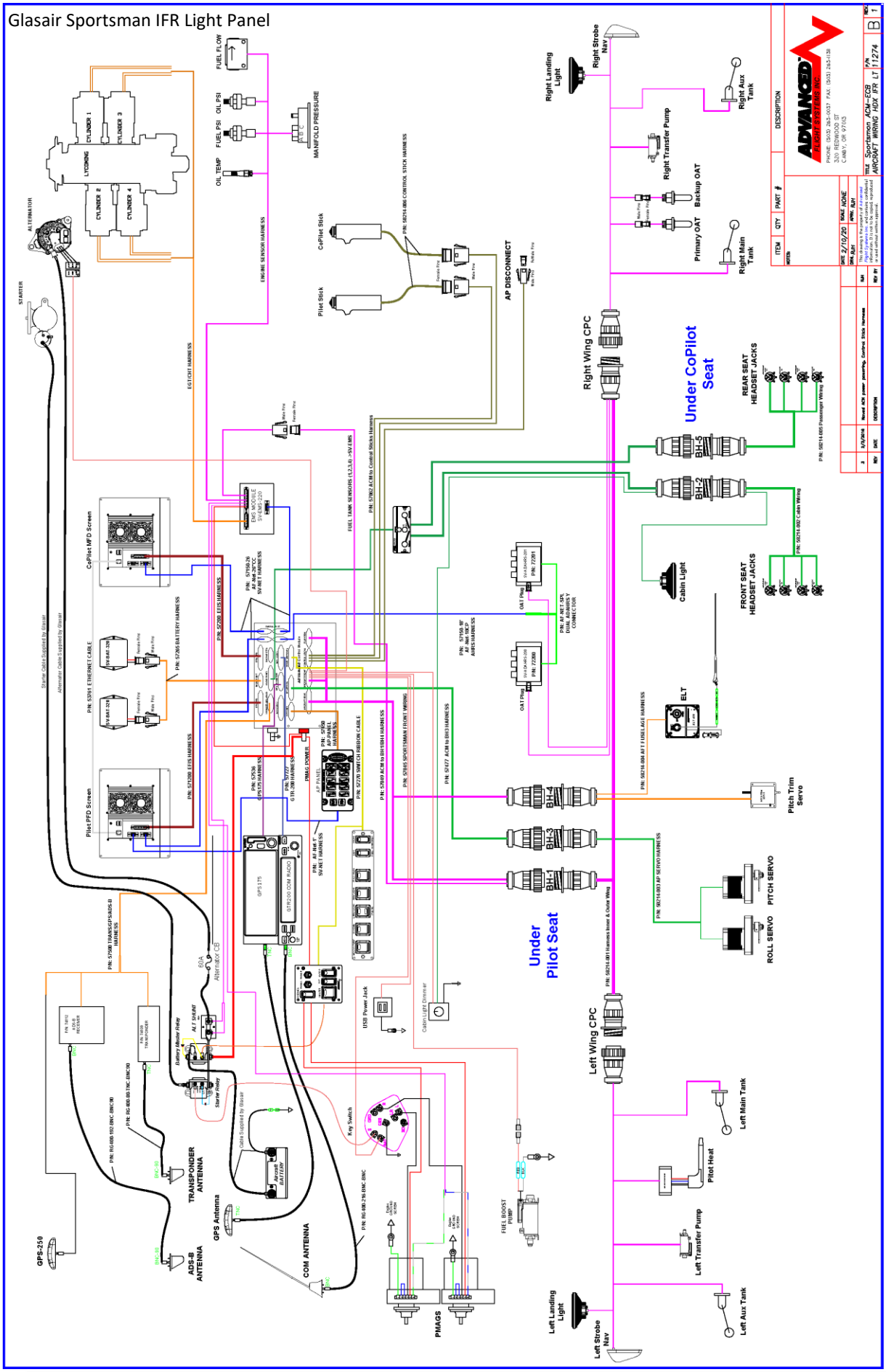
RV-14 Antenna Locations



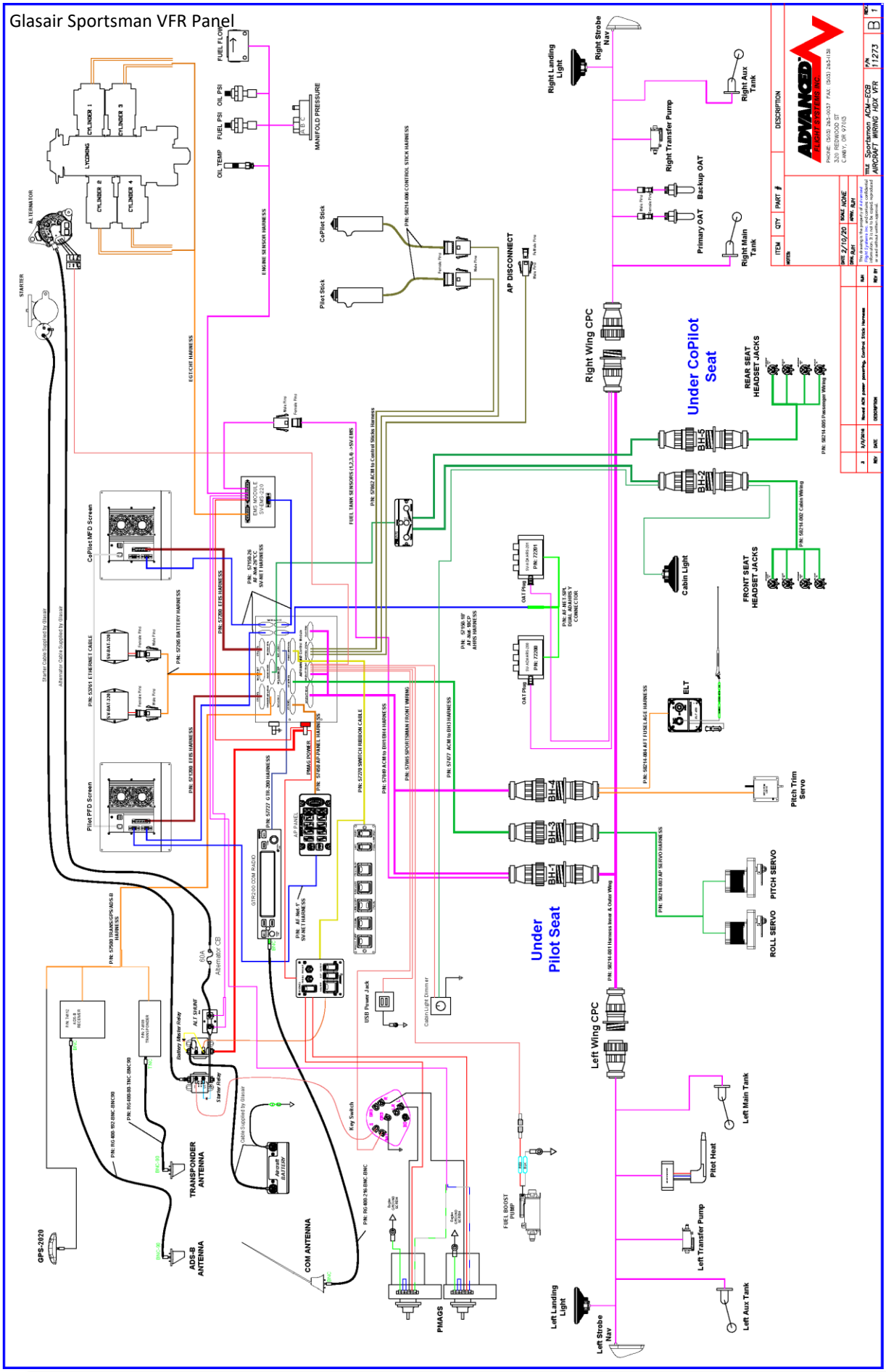
AF-5600 IFR Panel

Skyview HDX IFR Light Panel

Glasair Sportsman IFR Light Panel



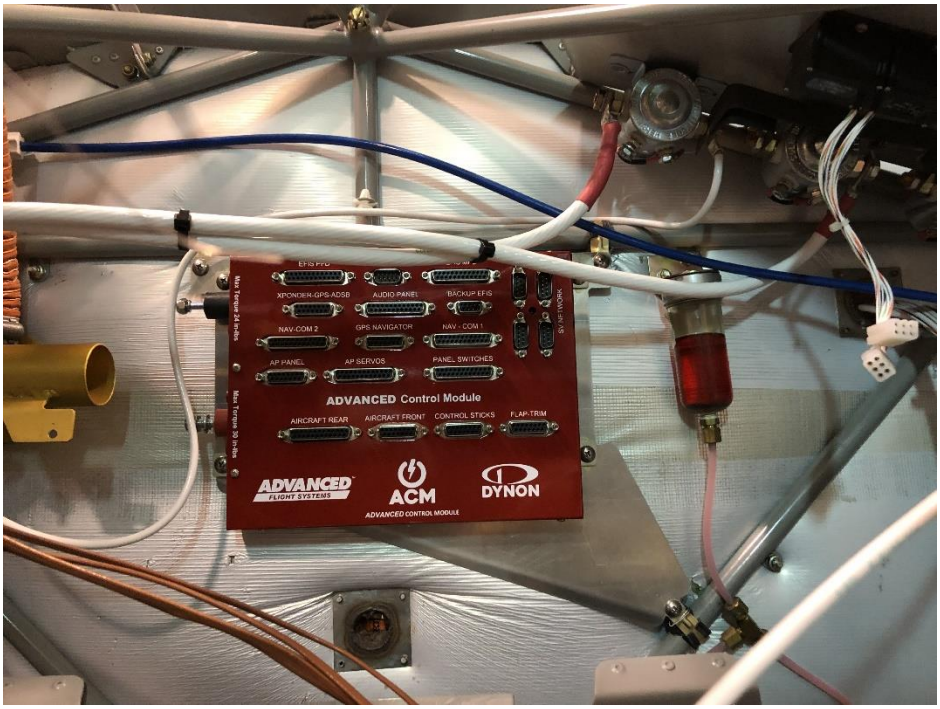
Glasair Sportsman VFR Panel



Sportsman Remote Component Mounting

P/N: 70080 ACM-ECB Mounting

The ACM-ECB module should be mounted to the forward fuselage weldment with three cushioned Adel mounting clamps using the supplied ACM mounting plate. Locate the module so that the clamps connect to the weldment bars.



Firewall Harness Routing

Left side firewall penetration has the following wires:

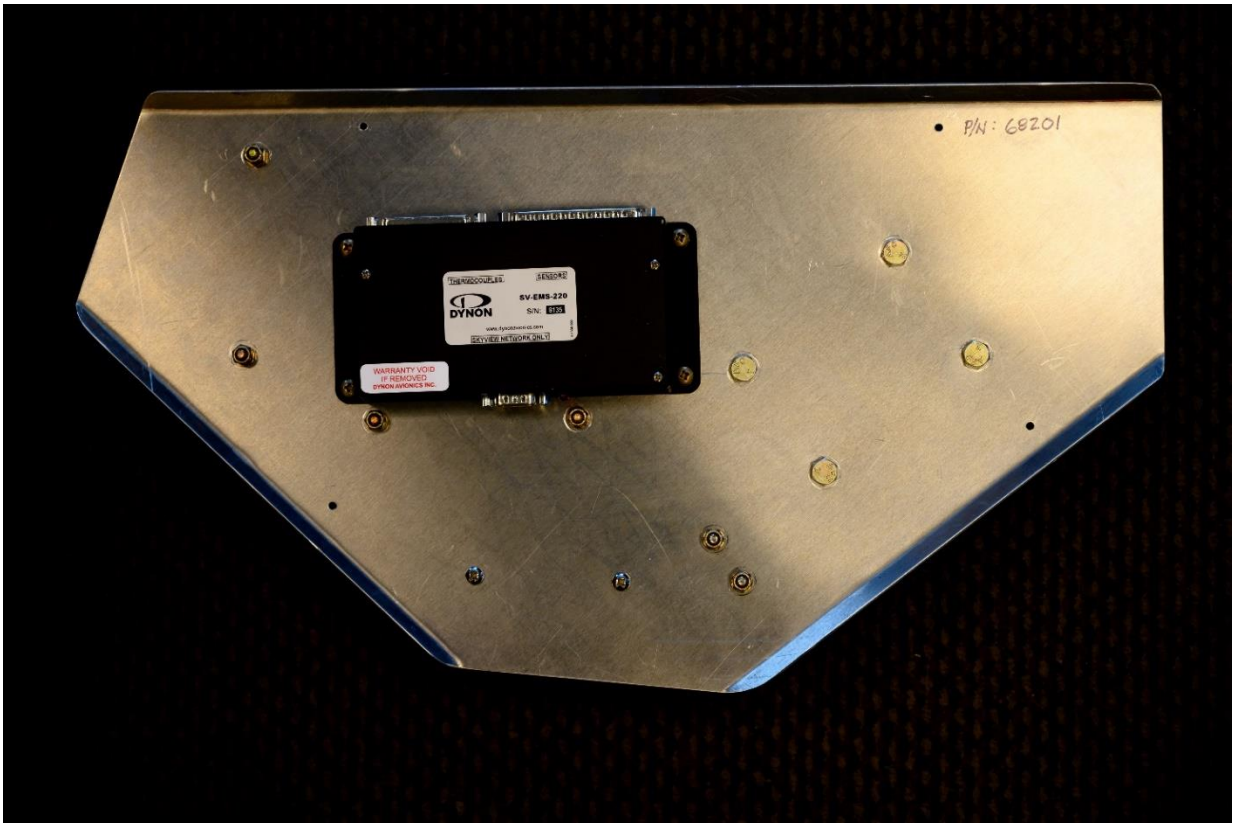
- Oil Pressure
- Fuel Pressure
- Oil Temp
- Mag P-Leads
- Battery Cable
- Starter Cable
- Cylinder 2,4 CHT- EGT

Right side firewall penetration has the following wires:

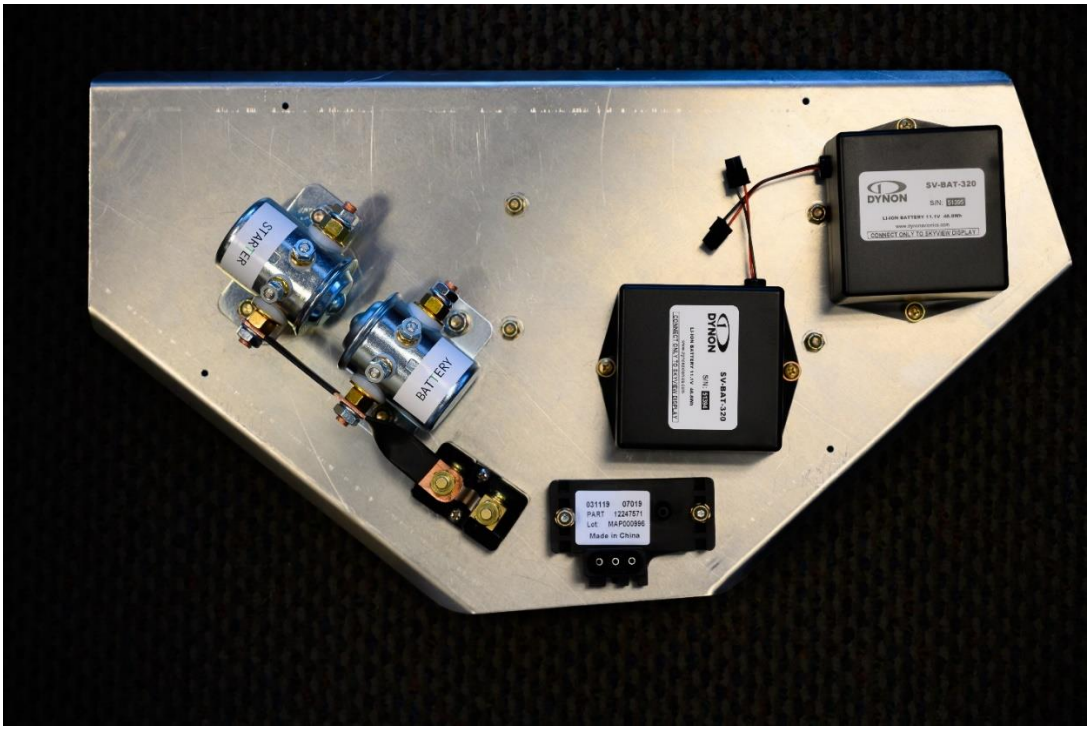
- Fuel Flow
- Alternator B Lead
- Alternator Field
- Cylinder 1,3 CHT- EGT

P/N: 68201 Sportsman Right Side Avionics Mounting Plate Assembly

The SV-EMS-220 module is mounted on the top of the mounting plate. The master and starter relays are mounted on the bottom of this plate.

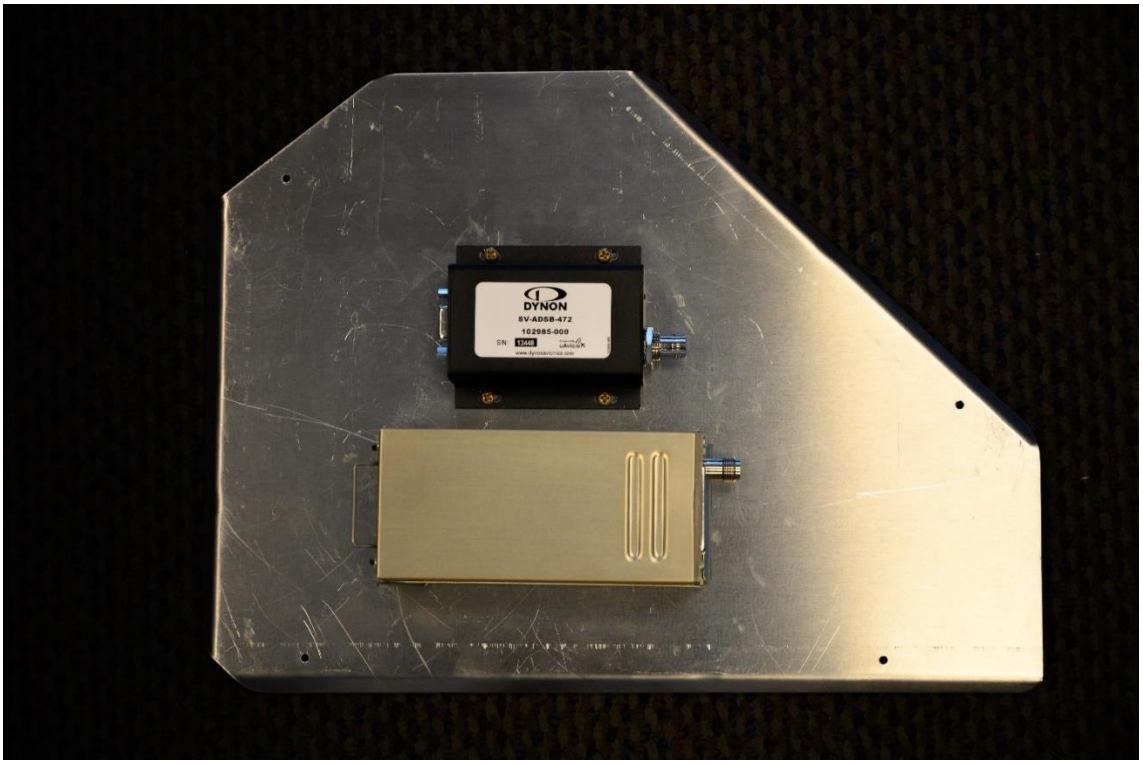


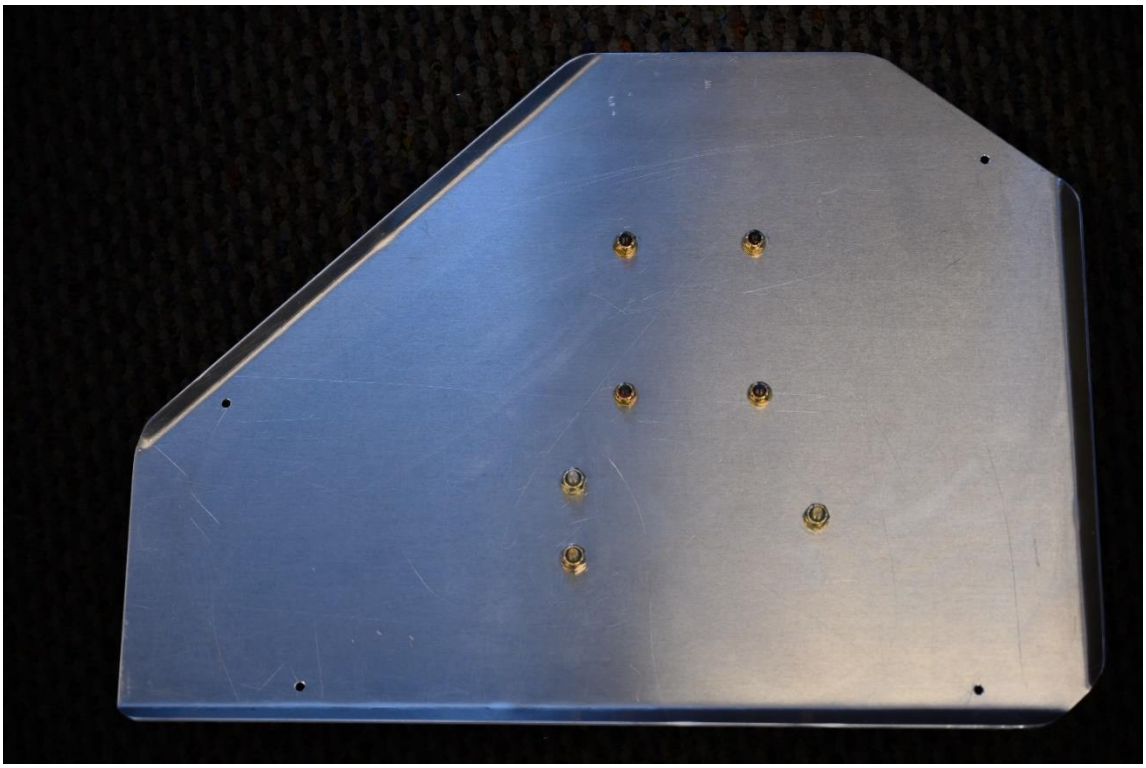
The master relay, starter relay, amperage shunt, manifold sensor and Skyview batteries are mounted on the bottom of the same plate on the right side of the fuselage. For an AF-5000 panel the TCW backup battery mounts on the bottom side of the plate. The TCW Battery mounting nuts are located so they don't interfere with components on the other side of the plate.



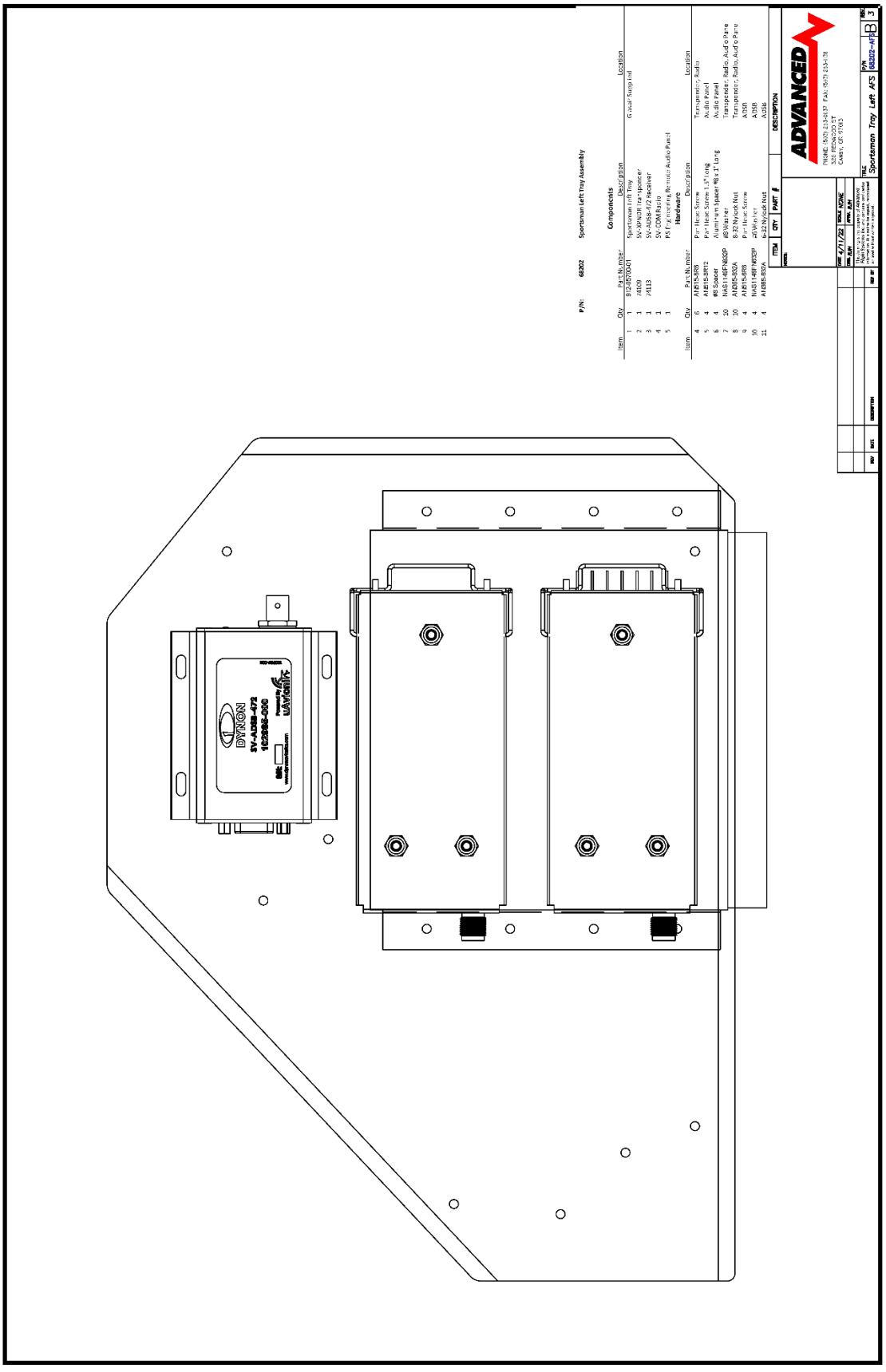
P/N: 68202 Sportsman Left Side Avionics Mounting Plate Assembly

The Transponder and ADS-B receiver should mount on the top of the left front plate.



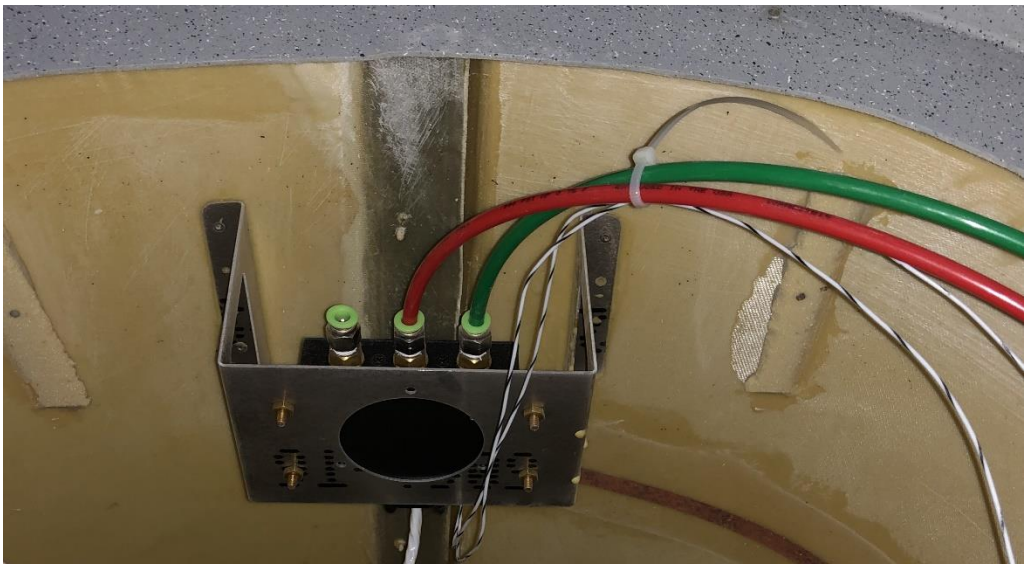


The optional PS Engineering Remote Audio Panel mounts on the bottom of the plate with 1” spacers.



SV-ADAHRS-200/201

The SV-ADAHRS are mounted on the top of the rear fuselage skin using the Glasair supplied ADAHRS mounting bracket. Carefully drill ***only through the inner layer of fiberglass*** and use pop rivets and epoxy resin to attach the bracket.

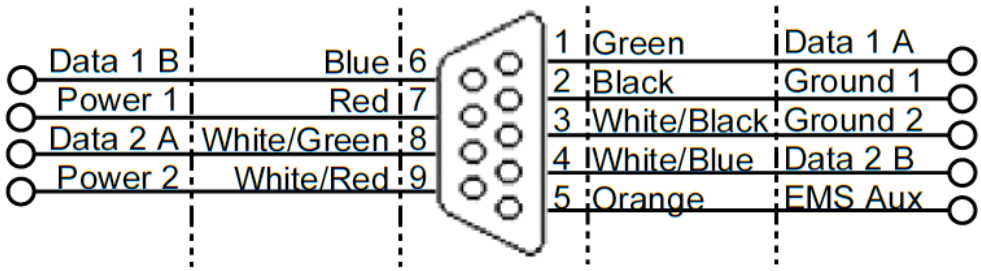


OAT Probe

The OAT probe should mount to the wing inspection plate and the wires should run down the strut and plugged into the ADAHRS 201. If you have dual ADHARS you will need to mount 2 OAT sensors so each ADAHRS has an OAT sendor.

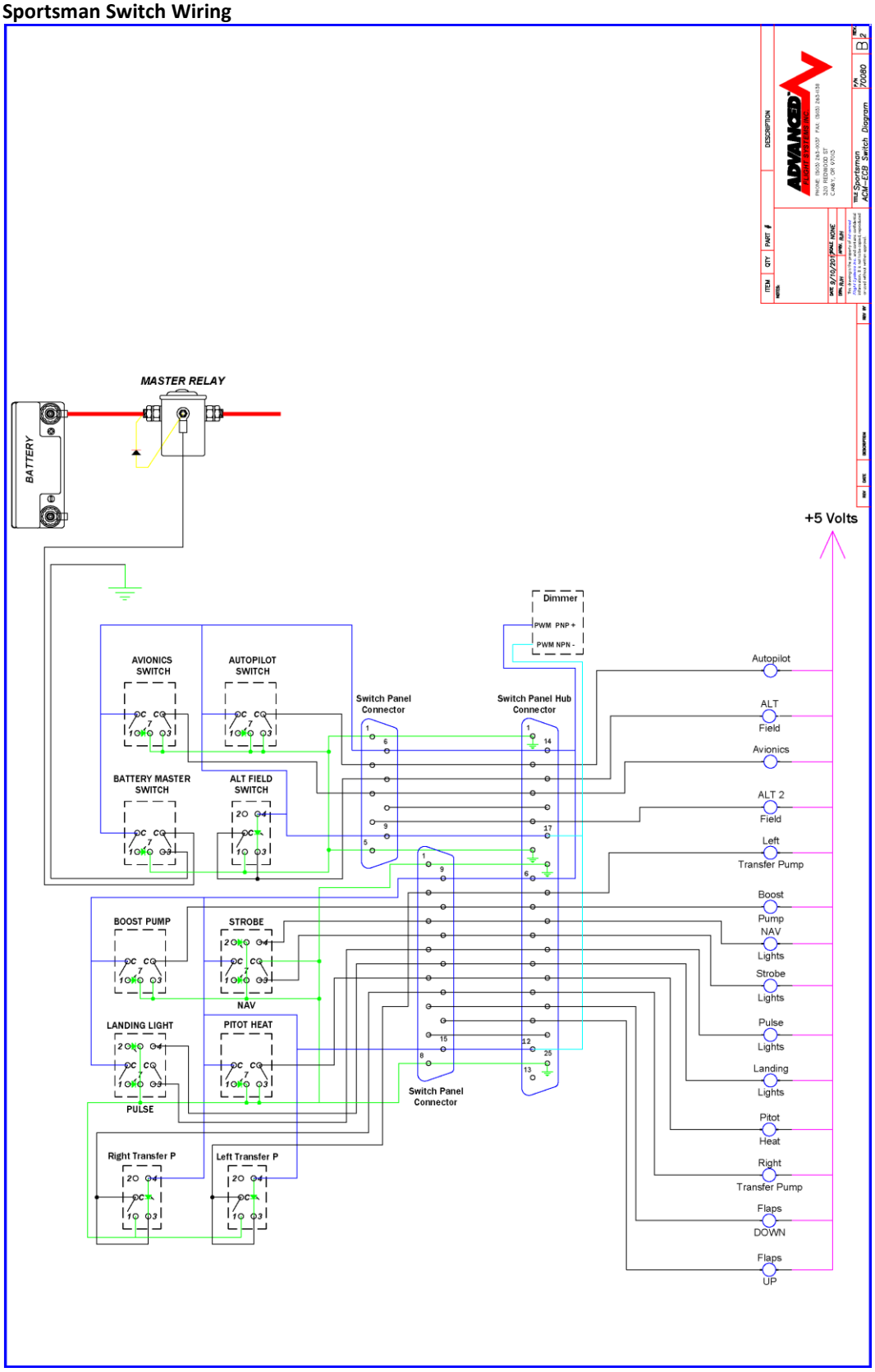
ADAHRS SV-NETWORK Wiring

SV Network Female D9 Pin	SV Network Cable Wire Color	Description
1	Green	Network Data 1 A
2	Black	Network Ground 1
3	White with Black Stripe	Network Ground 2
4	White with Blue Stripe	Network Data 2 B
5	Orange	EMS Auxiliary Voltage
6	Blue	Network Data 1 B
7	Red	Network Power 1
8	White with Green stripe	Network Data 2 A
9	White with Red stripe	Network Power 2

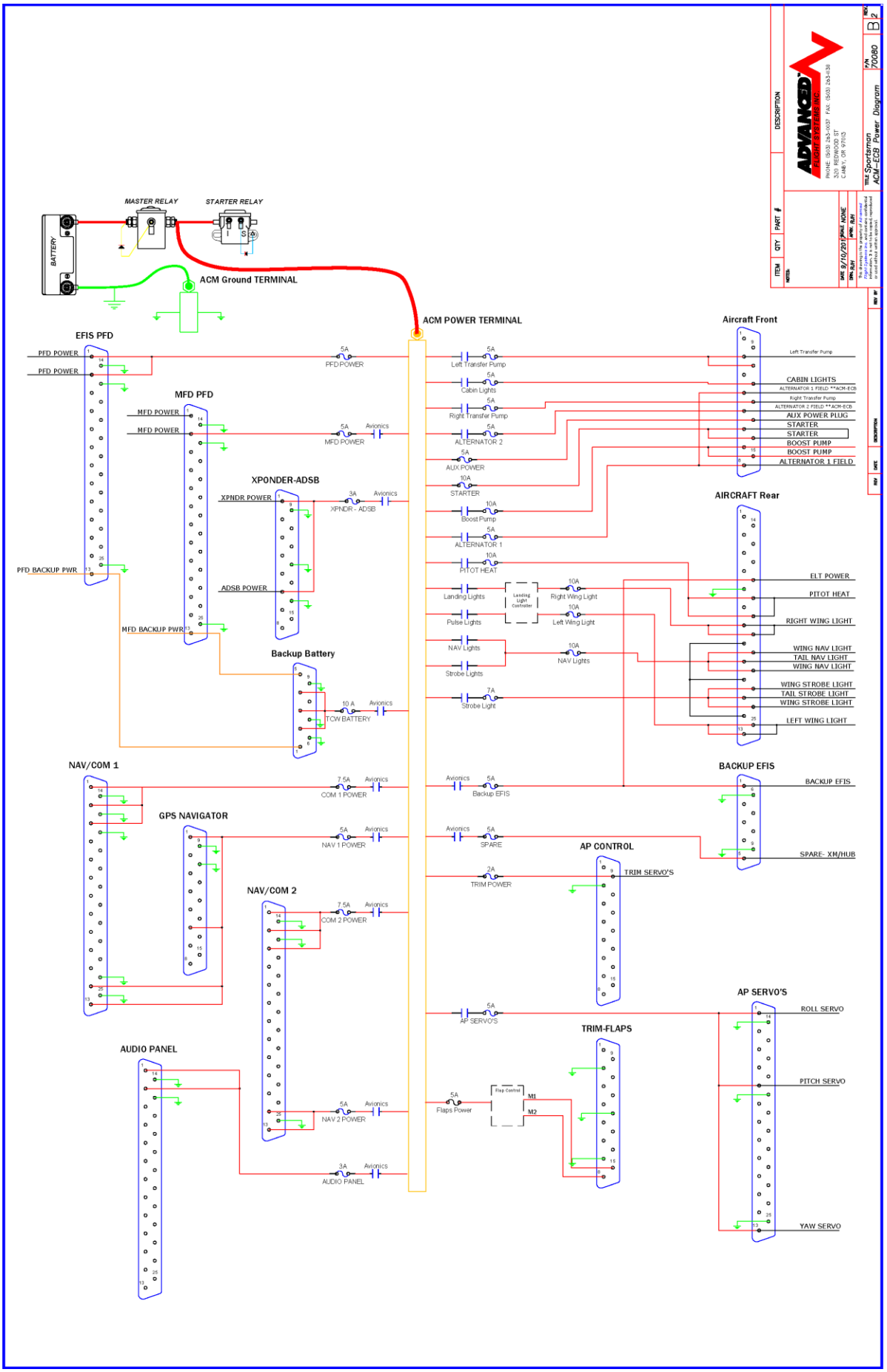


Network Female D9 Pin Insertion View (Rea

Sportsman Switch Wiring



Sportsman ACM-ECB Power Diagram



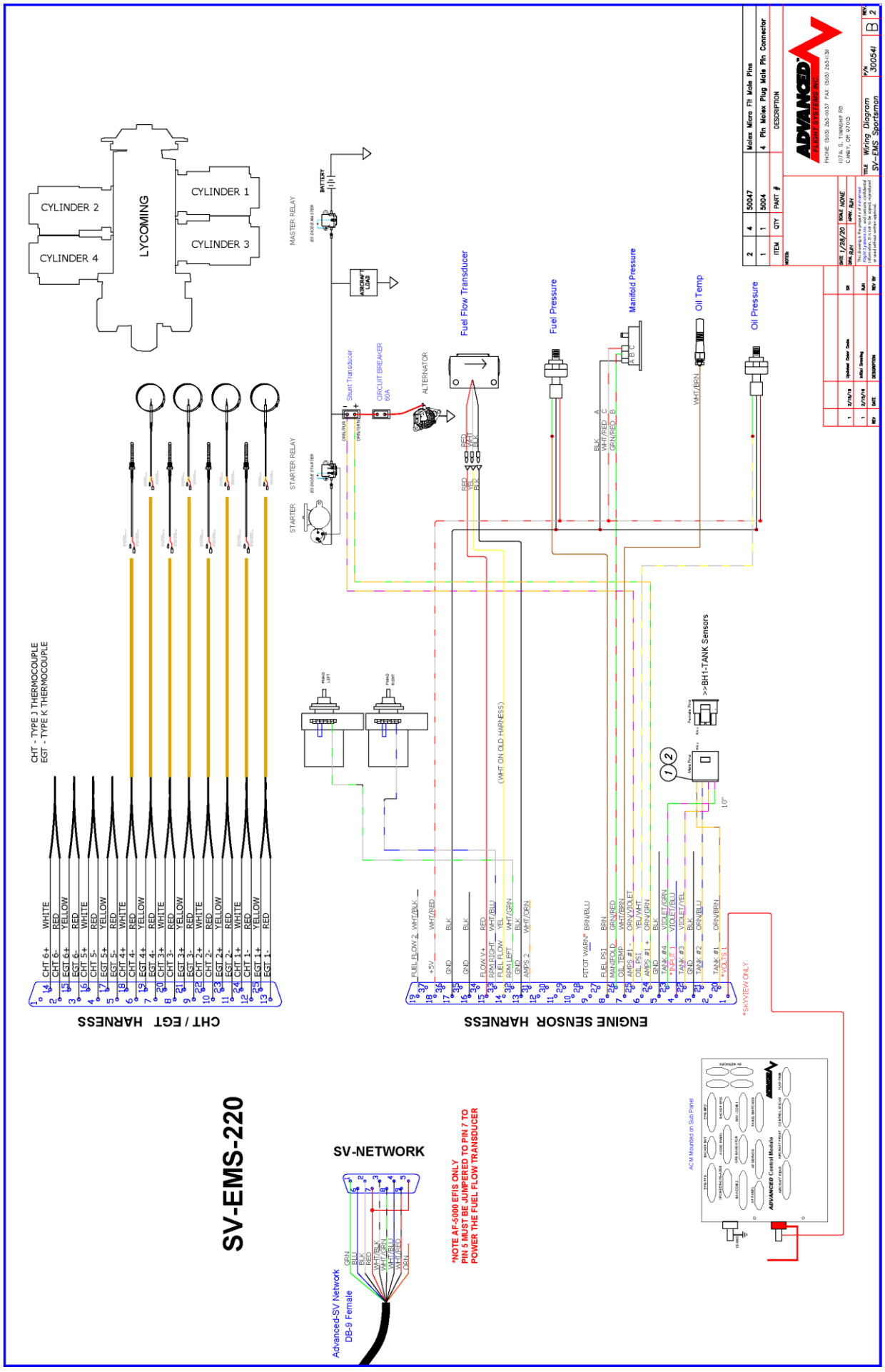
P/N: 53914-AFS Sportsman Engine Sensor Harness Wires

Pin	EMS 37-pin Harness Wire Color	Sensor
1		
2		
3		
4		
5		
6	White/Yellow	Oil pressure
7	White/Brown	Oil temperature
8	Brown	Fuel pressure
9		
10		
11		
12		
13	Black	Ground
14	Yellow	Fuel flow
15	Red	+8V Fuel Flow & Amps Hall Transducer Power. (*Must have SV-EMS Network Pin 7 jumper to Pin 5)
16		
17	Black	Ground
18	White/Red	+5V Aux Out 300ma
19		
20	Orange/Brown	Tank 1
21	Orange/Blue	Tank 2
22	Violet/Yellow	Tank 3
23	Violet/Green	Tank 4
24	Orange/Green	Ammeter shunt +
25	Orange/Violet	Ammeter shunt -
26	Green/Red	Manifold Pressure
27		
28		
29		
30		
31	White/Orange	Optional Aithre Analog CO Detector
32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right
34		
35		
36		
37		

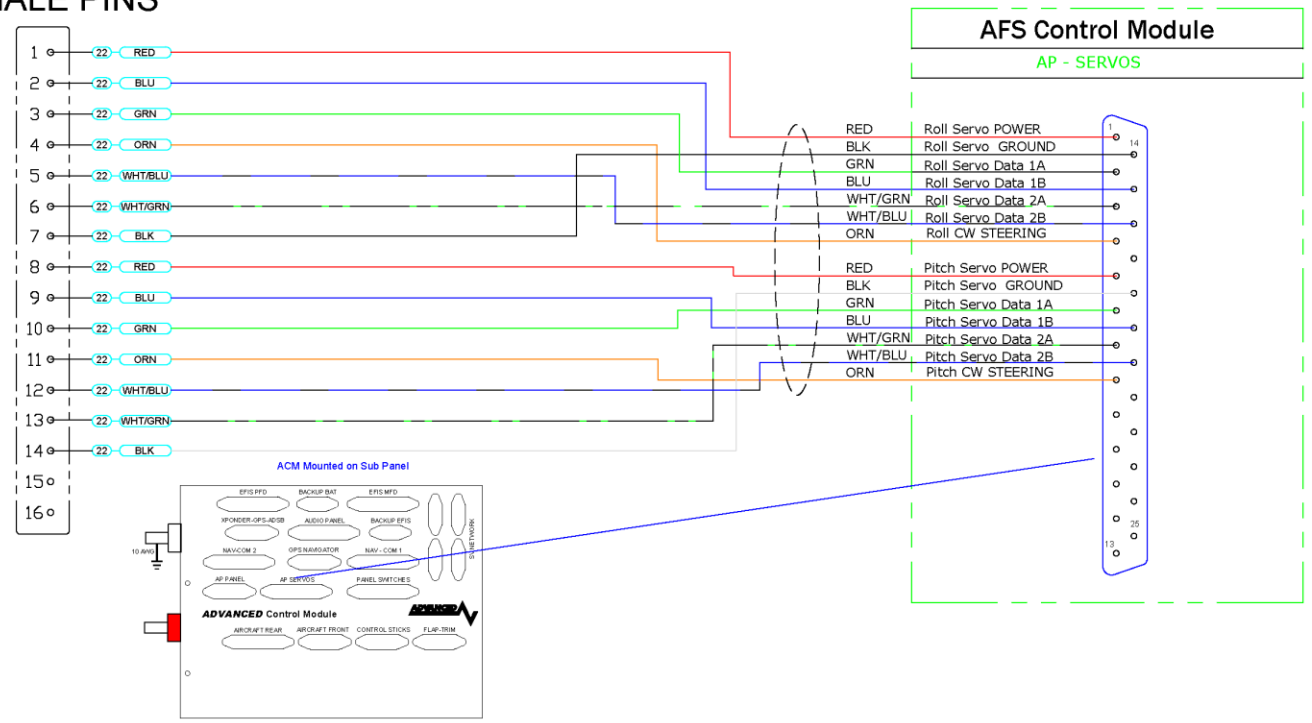
P/N: 53914-HDX Sportsman Engine Sensor Harness Wires

You can remove all unused wires from the Engine Sensor Harness using a pin removal tool

Pin	EMS 37-pin Harness Wire Color	Sensor	Routing Side
1	Red	Skyview Voltmeter 1	ACM Red Post
2			
3			
4			
5			
6	White/Yellow	Oil pressure	Left
7	White/Brown	Oil temperature	Left
8	Brown	Fuel pressure	Left
9	Brown/Blue	GP Input 5 –Pitot Heat Warning	BH1-16
10			
11			
12			
13	Black	Ground	Right
14	Yellow	Fuel flow	Right
15	Red	Fuel Flow & Amps Hall Transducer V+	Right
16			
17	Black	Ground	Left + Right Tray
18	White/Red	+5V Aux Out 300ma	Left + Right Tray
19			
20	Orange/Brown	Tank 1 – Float Sensor Only	BH1-3
21	Orange/Blue	Tank 2 – Float Sensor Only	BH1-10
22	Purple / Yellow	Tank 3 – Float Sensor Only	BH1-4
23	Purple / Green	Tank 4 – Float Sensor Only	BH1-11
24	Orange/Green	Ammeter shunt +	Right Tray
25	Orange/Violet	Ammeter shunt -	Right Tray
26	Green/Red	Manifold Pressure	Right Tray
27			
28			
29			
30			
31			
32	White/Green	Standard RPM LEFT	P-MAG Left
33	White/Blue	Standard RPM Right	P-MAG Right
34			
35			
36			
37			


SV-EMS-220
LYCOMING
CYLINDER 1
CYLINDER 2
CYLINDER 3
CYLINDER 4
CHT - TYPE J THERMOCOUPLE
EGT - TYPE K THERMOCOUPLE
CHT / EGT HARNESS
ENGINE SENSOR HARNESS
SV-NETWORK
Advanced-SV Network
DB-9 Female
*NOTE AF-5000 EFIS ONLY
PIN 5 MUST BE JUMPERED TO PIN 7 TO
POWER THE FUEL FLOW TRANSDUCER
ACM Mounted in Sub Panel
MASTER RELAY
STARTER RELAY
STARTER
BATTERY
ALTERNATOR
CIRCUIT BREAKER
60A
Shunt Transducer
Fuel Flow Transducer
Fuel Pressure
Manifold Pressure
Oil Temp
Oil Pressure
>>BH1-TANK Sensors
(WHT ON OLD HARNESS)
*SKYVIEW ONLY
ADVANCED FLIGHT SYSTEMS INC.
Wiring Diagram
SV-EMS Sportsman
P/N 300541

BH3
FEMALE PINS



BH3-AP ACM 105"
DASHED LINE-SNAKE SKIN

ITEM	QTY	PART NUMBER	DESCRIPTION
3	8	50060F	CPC Female Pin
2	1	50065	CPC Backshell With Clamp
1	1	50070M	CPC Male Housing – Female Pins
3	XXX	SV-CABLE	PITCH SERVO CABLE
2	XXX	SV-CABLE	ROLL SERVO CABLE
1	1	50125MA	DSUB 25 CONNECTOR ASSEMBLY

NOTES:

ADVANCED FLIGHT SYSTEMS INC.
PHONE (503) 263-0037 FAX (503) 263-4138
320 REDWOOD ST
CANBY, OR 97013

DATE 10/20/14 SCALE NONE
DRN. RJH APPV. RJH

REV	DATE	DESCRIPTION	REV BY
4	1/3/20	LENGTHENED HARNESS	JRH

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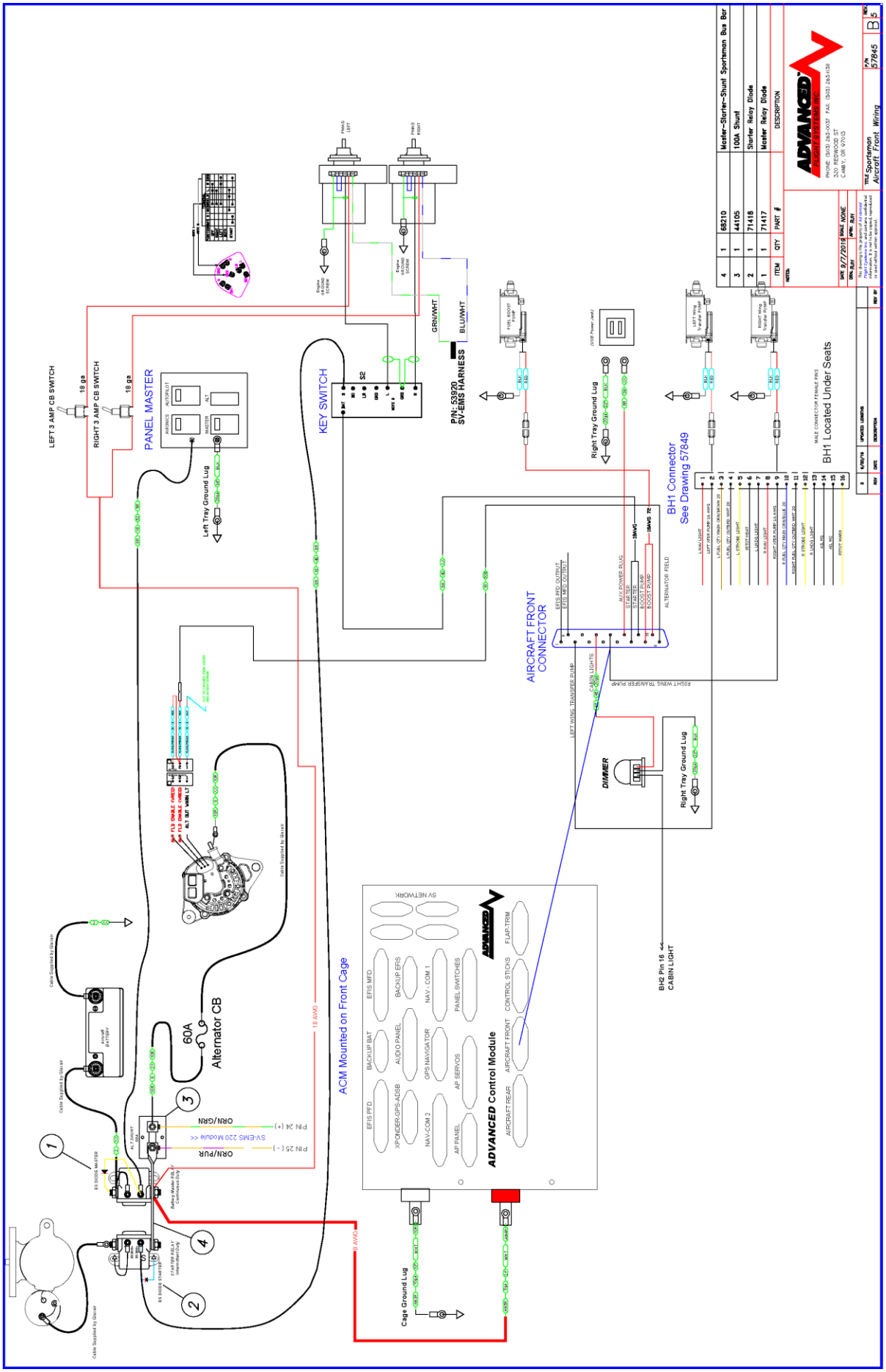
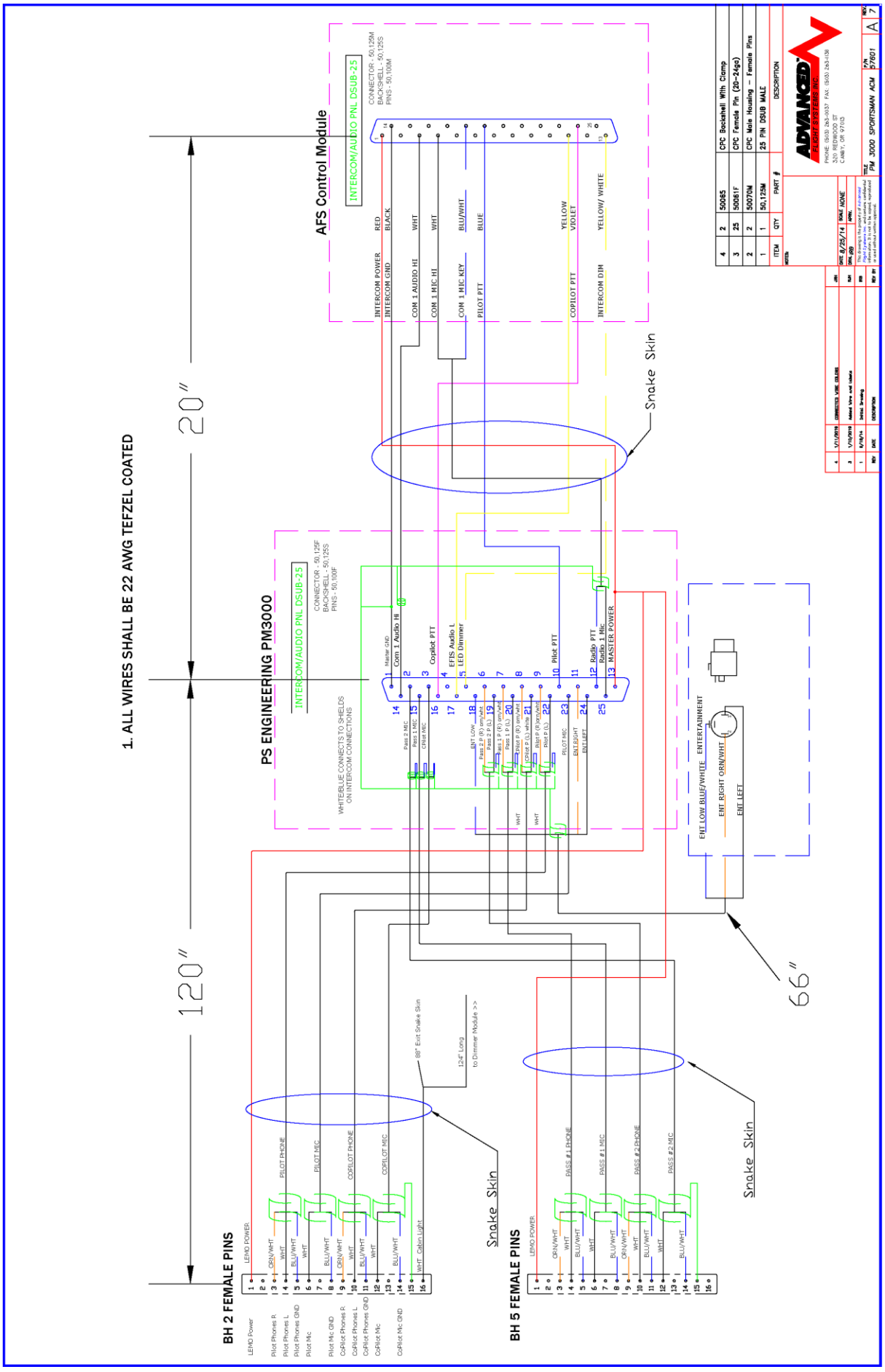
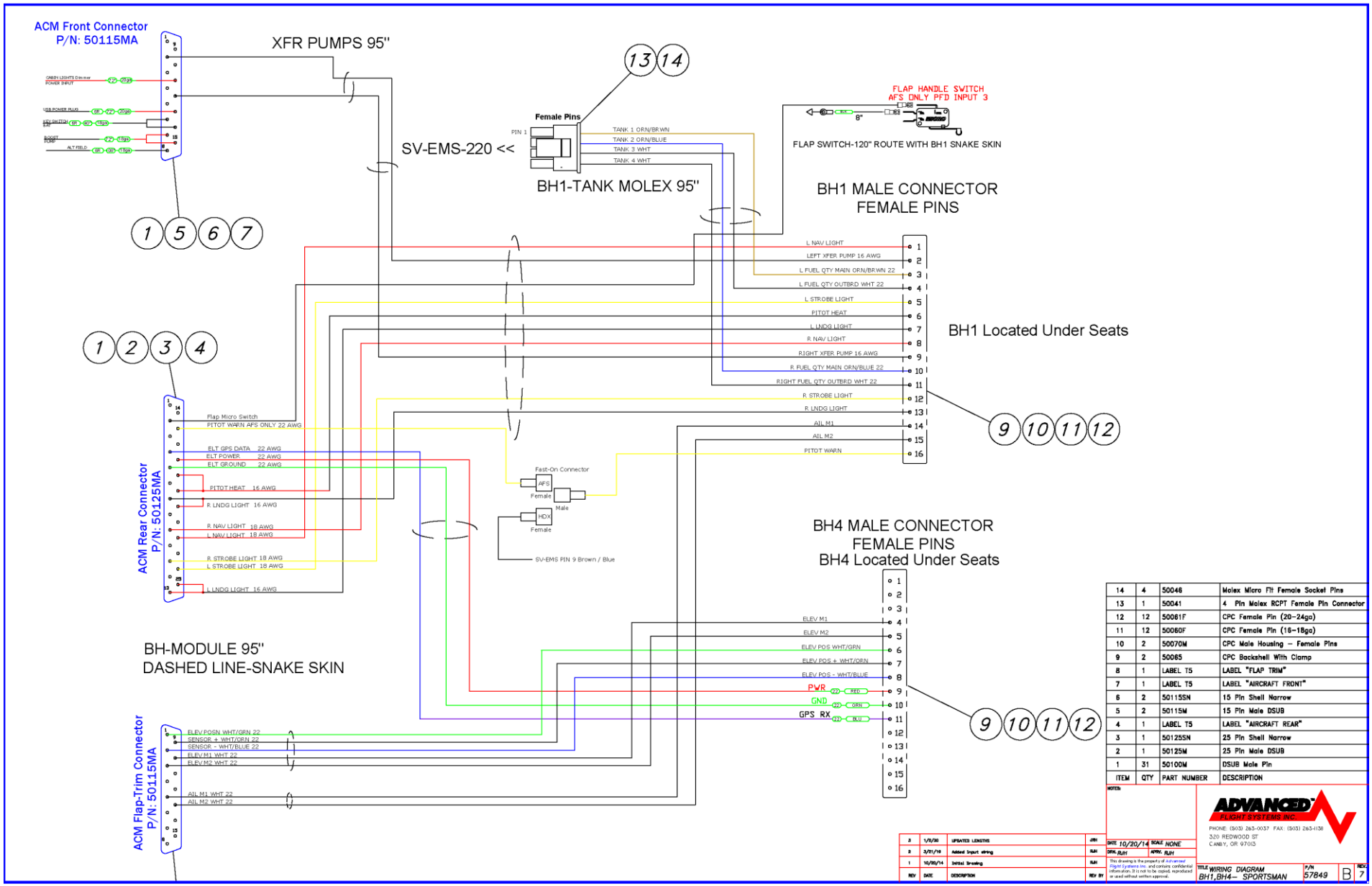
TITLE WIRING DIAGRAM ACM-BH 3
P/N 57477
REV. B 5


LEFT 3 AMP CB SWITCH
RIGHT 3 AMP CB SWITCH
18 ga
PANEL MASTER
KEY SWITCH
P/N: 53920
SV-EMS HARNESS
GRN/WHT
BLU/WHT
Left Tray Ground Lug
Right Tray Ground Lug
BH1 Connector
See Drawing 57849
BH1 Located Under Seats
AIRCRAFT FRONT
CONNECTOR
ACM Mounted on Front Cage
ADVANCED Control Module
60A
Alternator CB
18 AWG
ORN/GRN
ORN/PUR
PIN 24 (+)
PIN 25 (-)
SV-EMS 220 Module
DIMMER
Cage Ground Lug
BH2 Pin 16
CABIN LIGHT
Master--Starter--Shunt Sportsman Bus Bar
100A Shunt
Starter Relay Diode
Master Relay Diode
ADVANCED FLIGHT SYSTEMS INC.
Sportsman Aircraft Front Wiring
P/N 57845
REV B


AFS Control Module
INTERCOM/AUDIO PNL DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
INTERCOM POWER
INTERCOM GND
COM 1 AUDIO HI
COM 1 MIC HI
COM 1 MIC KEY
PILOT PTT
COPILOT PTT
INTERCOM DIM
RED
BLACK
WHT
WHT
BLU/WHT
BLUE
YELLOW
VIOLET
YELLOW/ WHITE
Snake Skin
PS ENGINEERING PM3000
INTERCOM/AUDIO PNL DSUB-25
CONNECTOR - 50.125F
BACKSHELL - 50.125S
PINS - 50.100F
WHITE/BLUE CONNECTS TO SHIELDS ON INTERCOM CONNECTIONS
Com 1 Audio Hi
Copilot PTT
EFIS Audio L
LED Dimmer
Pilot PTT
Radio PTT
Radio 1 Mic
MASTER POWER
ENT LOW BLUE/WHITE
ENT RIGHT ORN/WHT
ENT LEFT
ENTERTAINMENT
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
120"
20"
66"
BH 2 FEMALE PINS
LEMO Power
Pilot Phones R.
Pilot Phones L.
Pilot Phones GND
Pilot Mic
Pilot Mic GND
CoPilot Phones R.
CoPilot Phones L.
CoPilot Phones GND
CoPilot Mic
CoPilot Mic GND
PILOT PHONE
PILOT MIC
COPILOT PHONE
COPILOT MIC
Cabin Light
88" Ext Snake Skin
124" Long
to Dimmer Module >>
Snake Skin
BH 5 FEMALE PINS
LEMO POWER
PASS #1 PHONE
PASS #1 MIC
PASS #2 PHONE
PASS #2 MIC
Snake Skin
ITEM
QTY
PART #
DESCRIPTION
4 2 50065 CPC Backshell With Clamp
3 25 50061F CPC Female Pin (20-24ga)
2 2 50070M CPC Male Housing – Female Pins
1 1 50.125M 25 PIN DSUB MALE
ADVANCED FLIGHT SYSTEMS INC.
TITLE: PM 3000 SPORTSMAN ACM
P/N: 57601
REV: A
SCALE: NONE
DATE: 8/25/14



ITEM	QTY	PART NUMBER	DESCRIPTION
14	4	50046	Molex Micro Fit Female Socket Pins
13	1	50041	4 Pin Molex RCPT Female Pin Connector
12	12	50061F	CPC Female Pin (20-24ga)
11	12	50060F	CPC Female Pin (16-18ga)
10	2	50070M	CPC Male Housing – Female Pins
9	2	50065	CPC Backshell With Clamp
8	1	LABEL T5	LABEL "FLAP TRIM"
7	1	LABEL T5	LABEL "AIRCRAFT FRONT"
6	2	50115SN	15 Pin Shell Narrow
5	2	50115M	15 Pin Male DSUB
4	1	LABEL T5	LABEL "AIRCRAFT REAR"
3	1	50125SN	25 Pin Shell Narrow
2	1	50125M	25 Pin Male DSUB
1	31	50100M	DSUB Male Pin

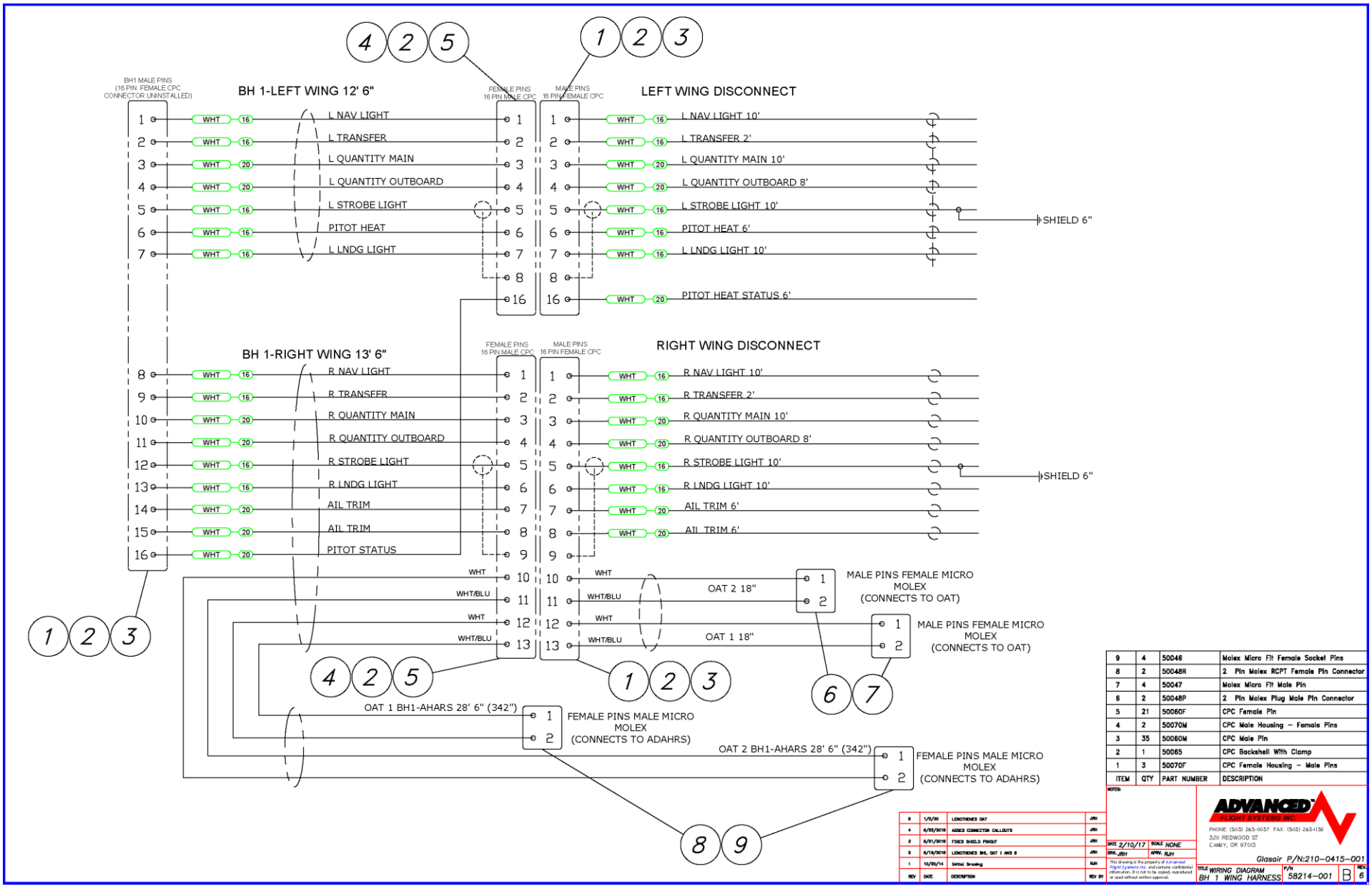
REV	DATE	DESCRIPTION	REV BY
3	1/8/20	UPDATES LENGTHS	JRH
2	2/21/19	Added Input wiring	RJH
1	10/20/14	Initial Drawing	RJH

NOTES:

DATE 10/20/14 SCALE NONE
DRN. RJH APPV. RJH

ADVANCED FLIGHT SYSTEMS INC.
PHONE: (503) 263-0037 FAX: (503) 263-1138
320 REDWOOD ST
CANBY, OR 97013

TITLE WIRING DIAGRAM BH1,BH4-- SPORTSMAN | P/N 57849 | B | REV 7



ITEM	QTY	PART NUMBER	DESCRIPTION
9	4	50046	Molex Micro Fit Female Socket Pins
8	2	50048R	2 Pin Molex RCPT Female Pin Connector
7	4	50047	Molex Micro Fit Male Pin
6	2	50048P	2 Pin Molex Plug Male Pin Connector
5	21	50060F	CPC Female Pin
4	2	50070M	CPC Male Housing – Female Pins
3	35	50060M	CPC Male Pin
2	1	50065	CPC Backshell With Clamp
1	3	50070F	CPC Female Housing – Male Pins

NOTES:

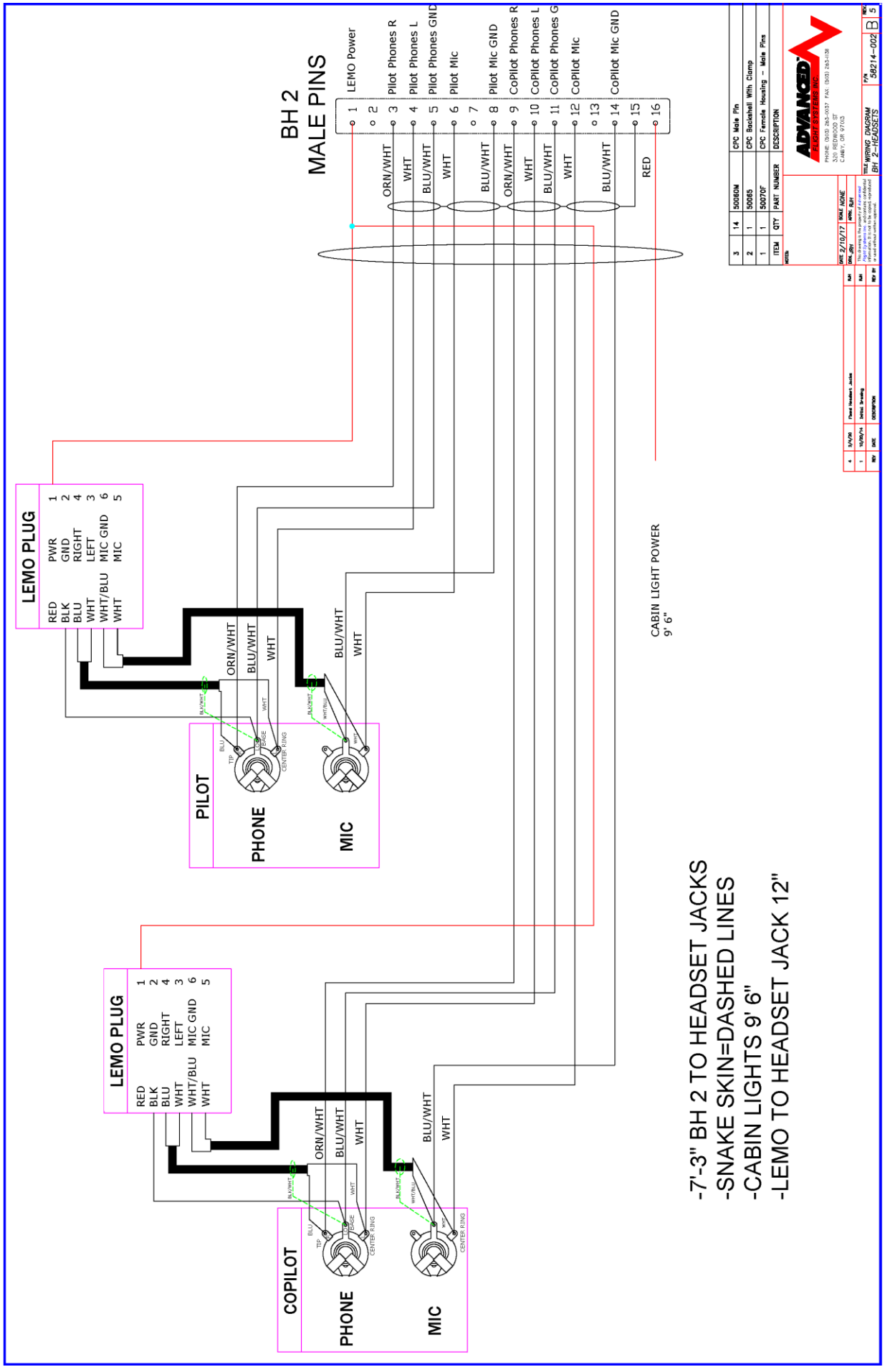
REV	DATE	DESCRIPTION	REV BY
6	1/2/20	LENGTHENED OAT	JRH
4	8/22/2018	ADDED CONNECTOR CALLOUTS	JRH
3	8/21/2018	FIXED SHIELD PINOUT	JRH
2	8/19/2018	LENGTHENED BH1, OAT 1 AND 2	JRH
1	10/20/14	Initial Drawing	RJH

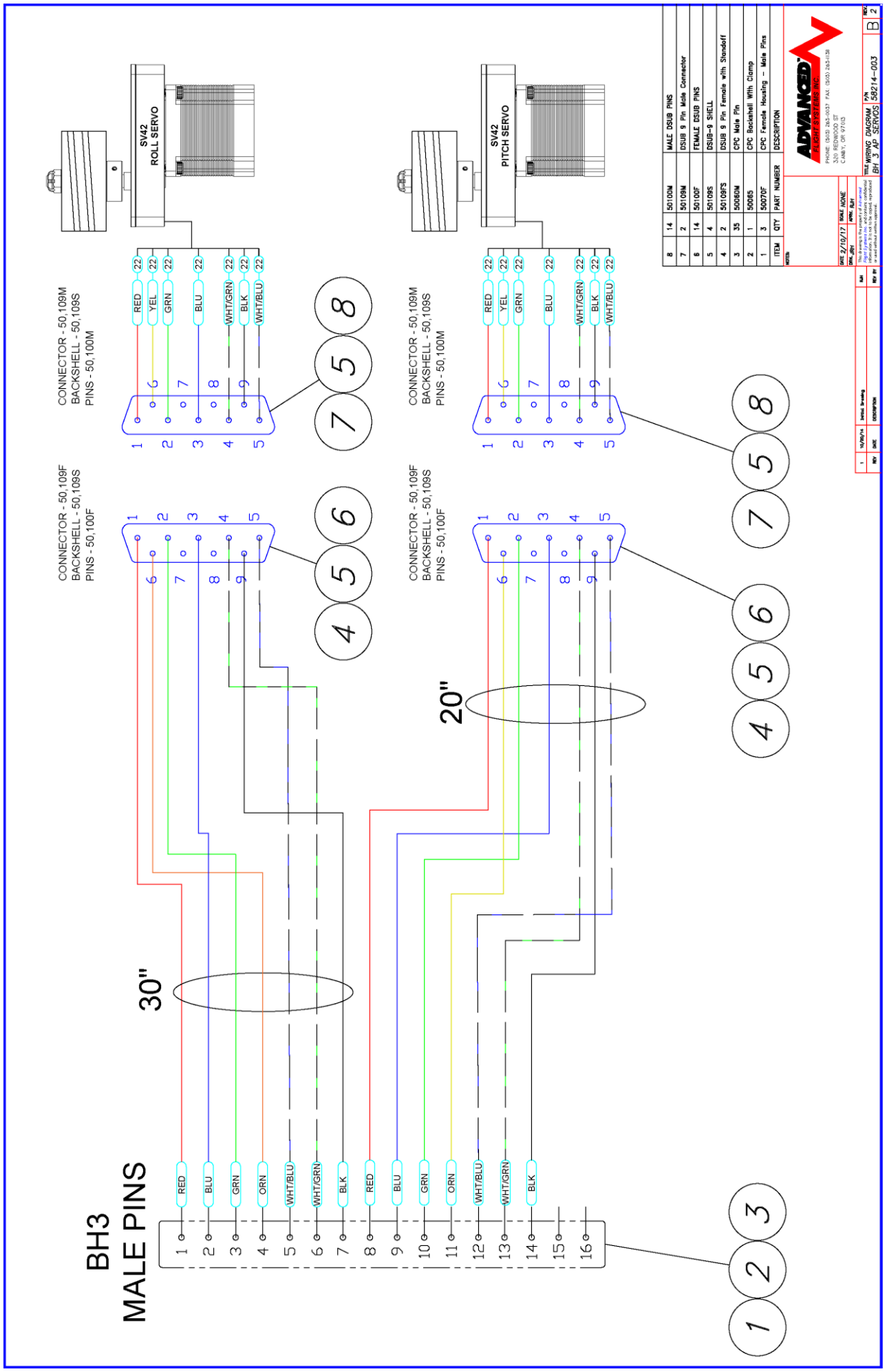
DATE 2/10/17 SCALE NONE
DRN. JRH APPV. RJH

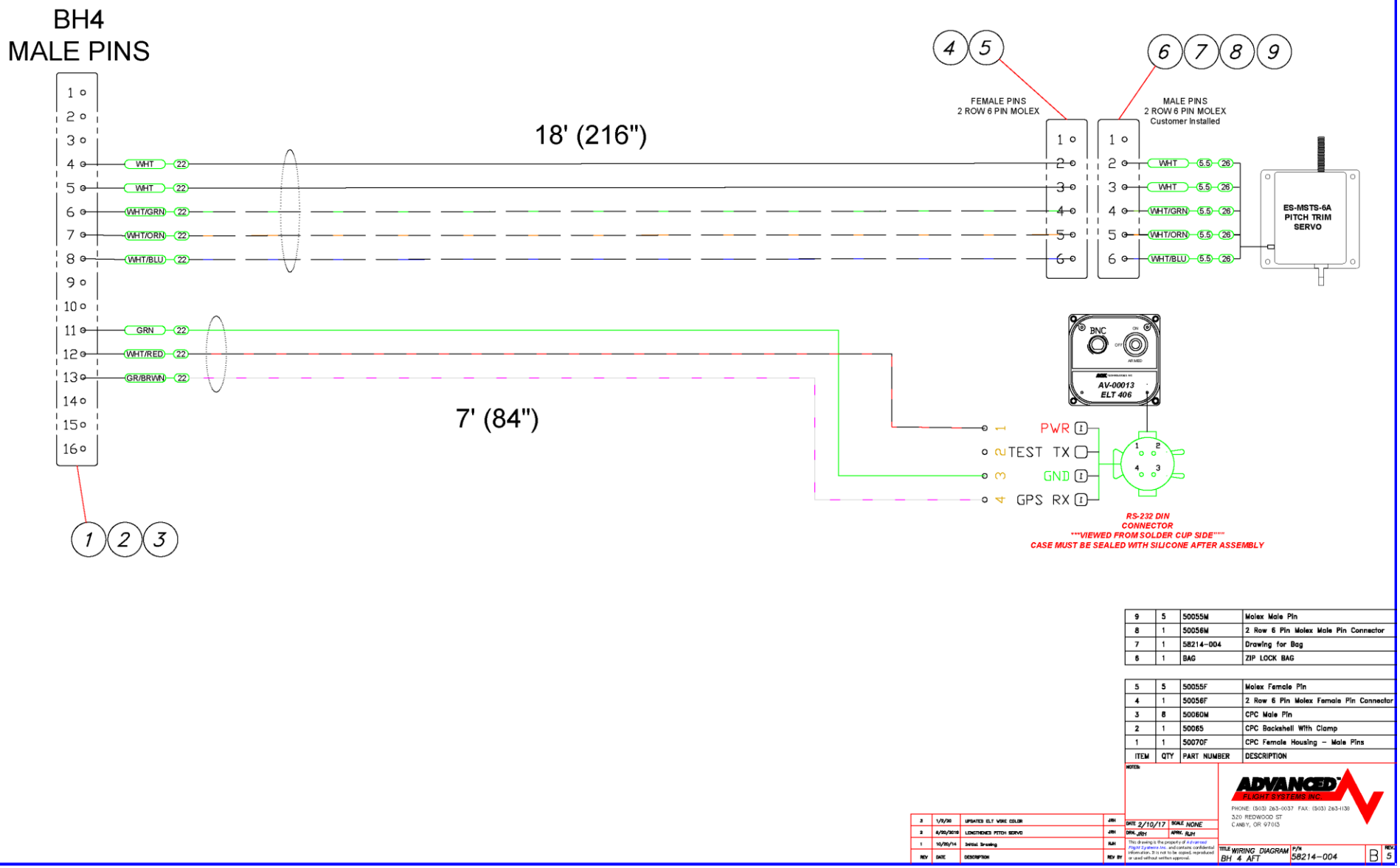
ADVANCED FLIGHT SYSTEMS INC.
PHONE: (503) 263-0037 FAX: (503) 263-1138
320 REDWOOD ST
CANBY, OR 97013

Glasair P/N:210-0415-001

TITLE WIRING DIAGRAM BH 1 WING HARNESS | P/N 58214-001 | REV. B | 6


BH 2
MALE PINS
LEMO Power
Pilot Phones R
Pilot Phones L
Pilot Phones GND
Pilot Mic
Pilot Mic GND
CoPilot Phones R
CoPilot Phones L
CoPilot Phones G
CoPilot Mic
CoPilot Mic GND
ORN/WHT
WHT
BLU/WHT
RED
LEMO PLUG
RED PWR 1
BLK GND 2
BLU RIGHT 4
WHT LEFT 3
WHT/BLU MIC GND 6
WHT MIC 5
PILOT
PHONE
MIC
COPILOT
CABIN LIGHT POWER
9' 6"
-7'-3" BH 2 TO HEADSET JACKS
-SNAKE SKIN=DASHED LINES
-CABIN LIGHTS 9' 6"
-LEMO TO HEADSET JACK 12"
ADVANCED FLIGHT SYSTEMS INC.
TITLE WIRING DIAGRAM BH 2 HEADSETS
P/N 58214-002
REV B


BH3
MALE PINS
30"
20"
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
CONNECTOR - 50,109M
BACKSHELL - 50,109S
PINS - 50,100M
SV42
ROLL SERVO
SV42
PITCH SERVO
RED
YEL
GRN
BLU
WHT/GRN
BLK
WHT/BLU
ORN
MALE DSUB PINS
DSUB 9 Pin Male Connector
FEMALE DSUB PINS
DSUB-9 SHELL
DSUB 9 Pin Female with Standoff
CPC Male Pin
CPC Backshell With Clamp
CPC Female Housing – Male Pins
DESCRIPTION
PART NUMBER
QTY
ITEM
WIRING DIAGRAM
BH3 AP SERVOS
58214-003



ITEM	QTY	PART NUMBER	DESCRIPTION
9	5	50055M	Molex Male Pin
8	1	50056M	2 Row 6 Pin Molex Male Pin Connector
7	1	58214-004	Drawing for Bag
6	1	BAG	ZIP LOCK BAG
5	5	50055F	Molex Female Pin
4	1	50056F	2 Row 6 Pin Molex Female Pin Connector
3	8	50060M	CPC Male Pin
2	1	50065	CPC Backshell With Clamp
1	1	50070F	CPC Female Housing – Male Pins

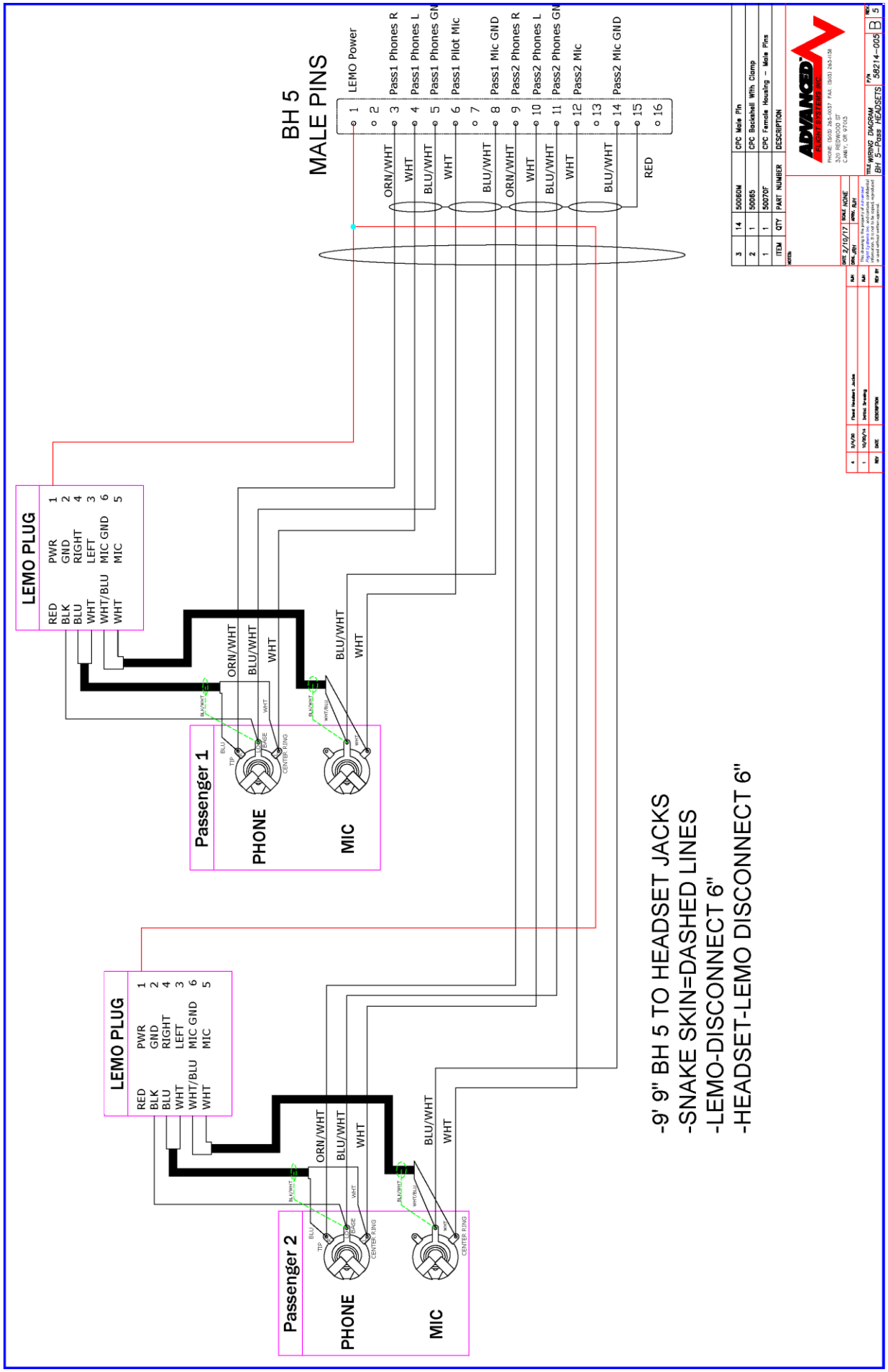
NOTES:

REV	DATE	DESCRIPTION	REV BY
3	1/2/20	UPDATED ELT WIRE COLOR	JRH
2	6/20/2018	LENGTHENED PITCH SERVO	JRH
1	10/20/14	Initial Drawing	RJH

DATE 2/10/17 SCALE NONE
DRN. JRH APPV. RJH

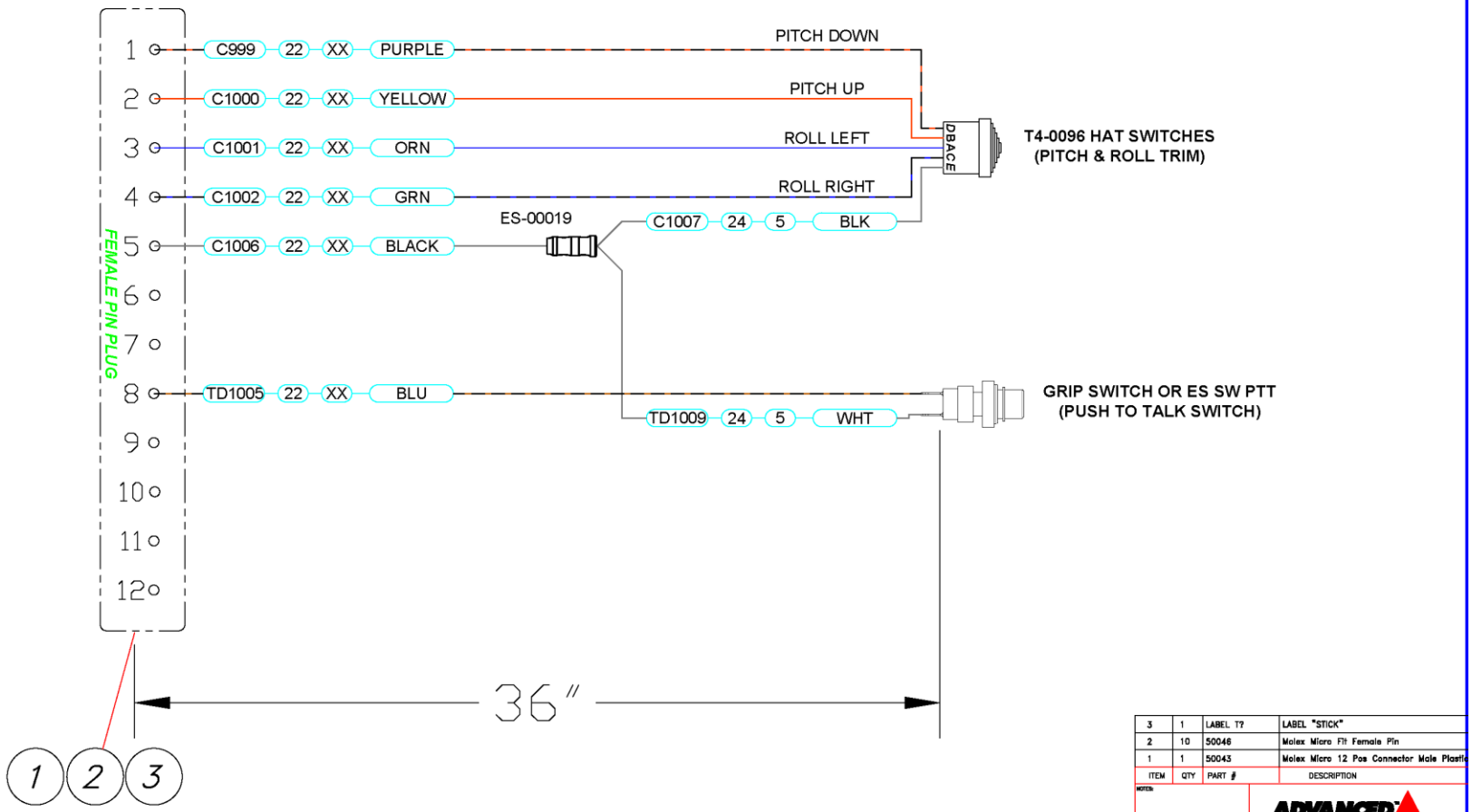
ADVANCED FLIGHT SYSTEMS INC.
PHONE (503) 263-0037 FAX (503) 263-1138
320 REDWOOD ST
CANBY, OR 97013

TITLE WIRING DIAGRAM BH 4 AFT | P/N 58214-004 | REV B 5


BH 5
MALE PINS
LEMO Power
Pass1 Phones R
Pass1 Phones L
Pass1 Phones GN
Pass1 Pilot Mic
Pass1 Mic GND
Pass2 Phones R
Pass2 Phones L
Pass2 Phones GN
Pass2 Mic
Pass2 Mic GND
ORN/WHT
WHT
BLU/WHT
WHT
BLU/WHT
WHT
BLU/WHT
WHT
BLU/WHT
RED
LEMO PLUG
RED PWR
BLK GND
BLU RIGHT
WHT LEFT
WHT/BLU MIC GND
WHT MIC
Passenger 1
PHONE
MIC
Passenger 2
PHONE
MIC
TIP
BASE
CENTER RING
-9' 9" BH 5 TO HEADSET JACKS
-SNAKE SKIN=DASHED LINES
-LEMO-DISCONNECT 6"
-HEADSET-LEMO DISCONNECT 6"
ADVANCED
ELECTRONIC SYSTEMS INC
TITLE WIRING DIAGRAM
BH 5 Pass HEADSETS
P/N 58214-005
REV B
SHEET 5

Control Stick Harness

BH6/7



ITEM	QTY	PART #	DESCRIPTION
3	1	LABEL T7	LABEL "STICK"
2	10	50046	Molex Micro Fit Female Pin
1	1	50043	Molex Micro 12 Pos Connector Male Plastic

NOTES:

ADVANCED FLIGHT SYSTEMS INC.
PHONE: (503) 263-0037 FAX: (503) 263-1138
320 REDWOOD ST
CANBY, OR 97013

DATE 8/28/19 SCALE NONE
DRN. JRH APPV. RJH

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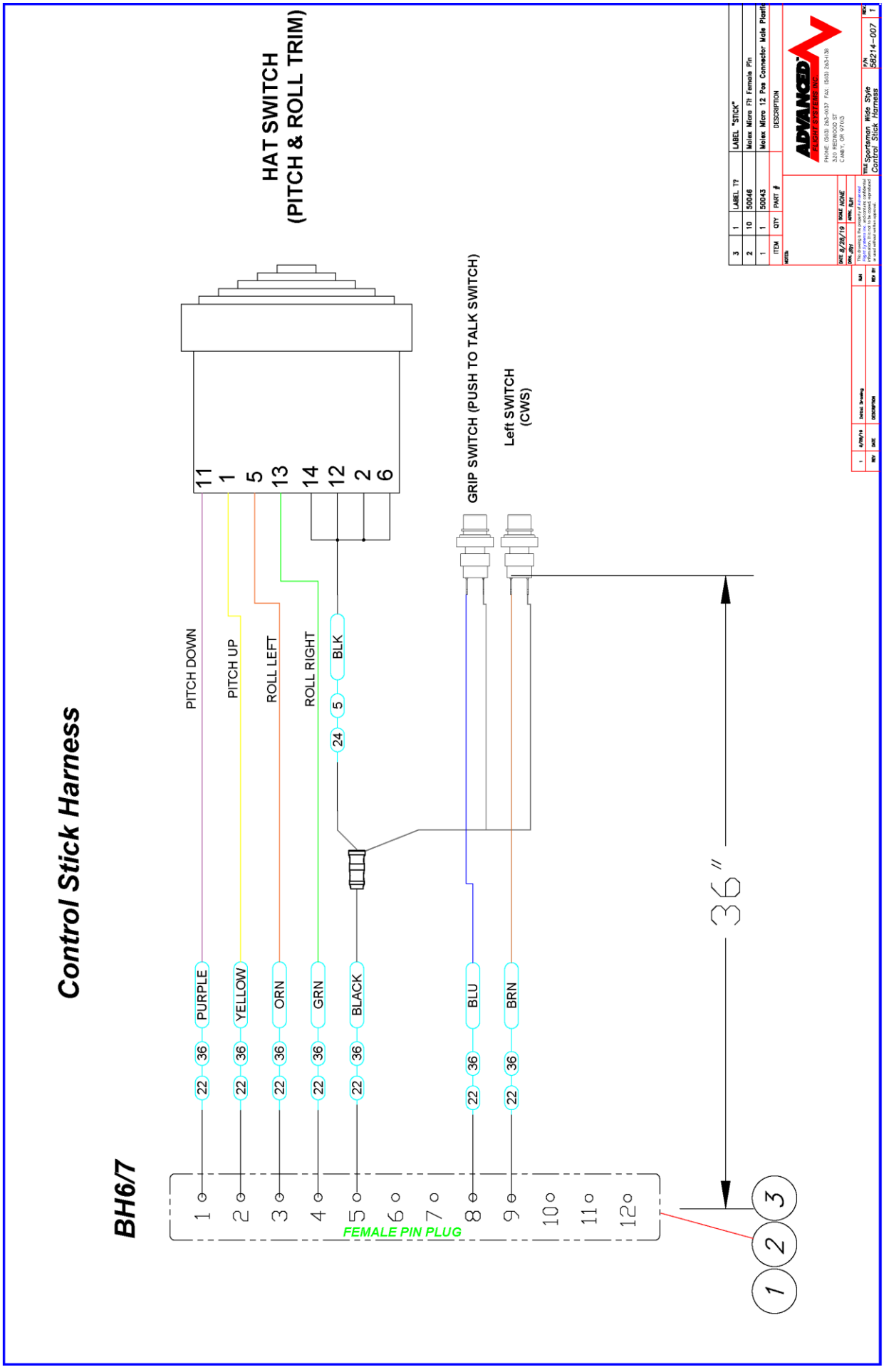
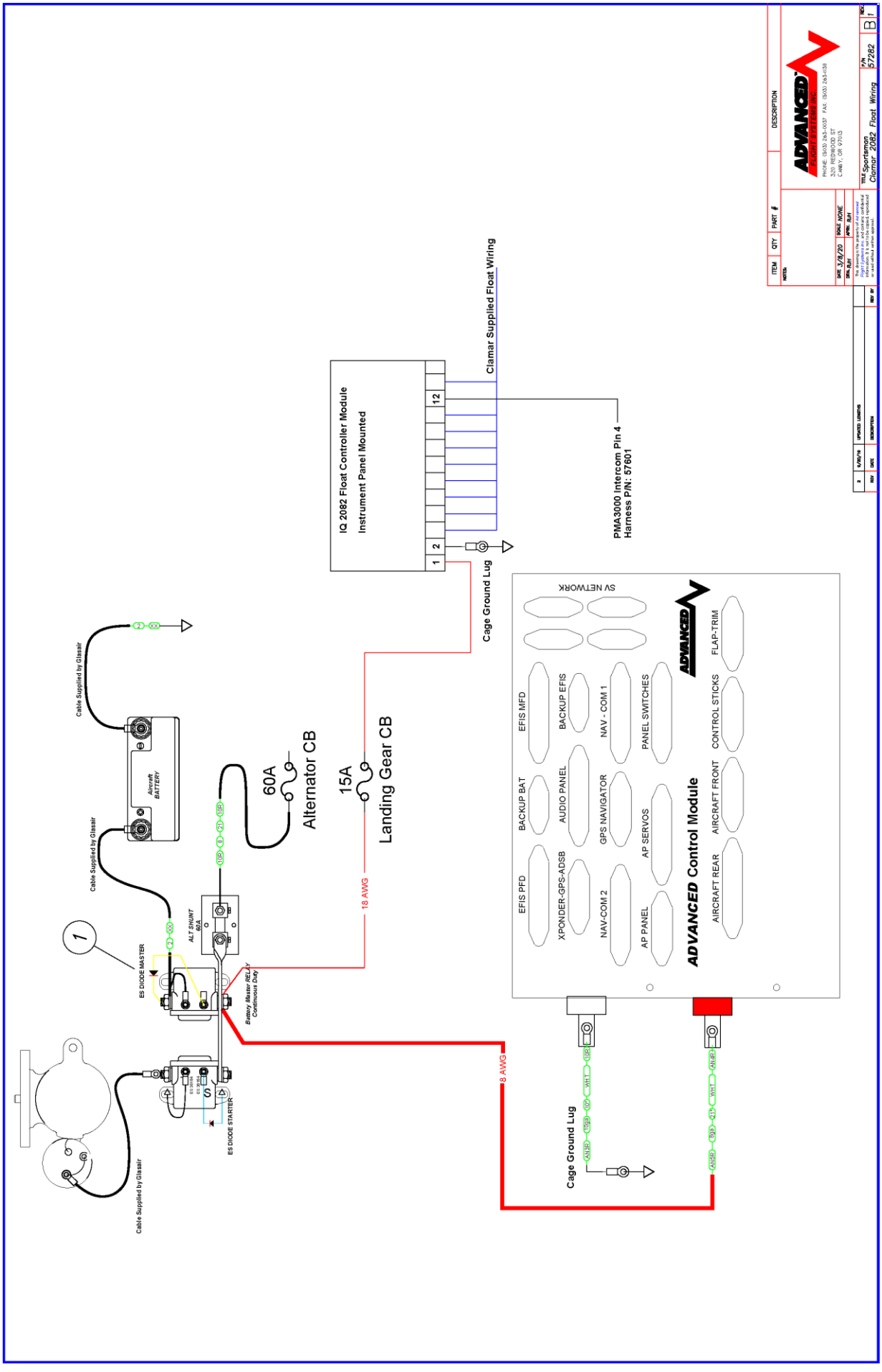
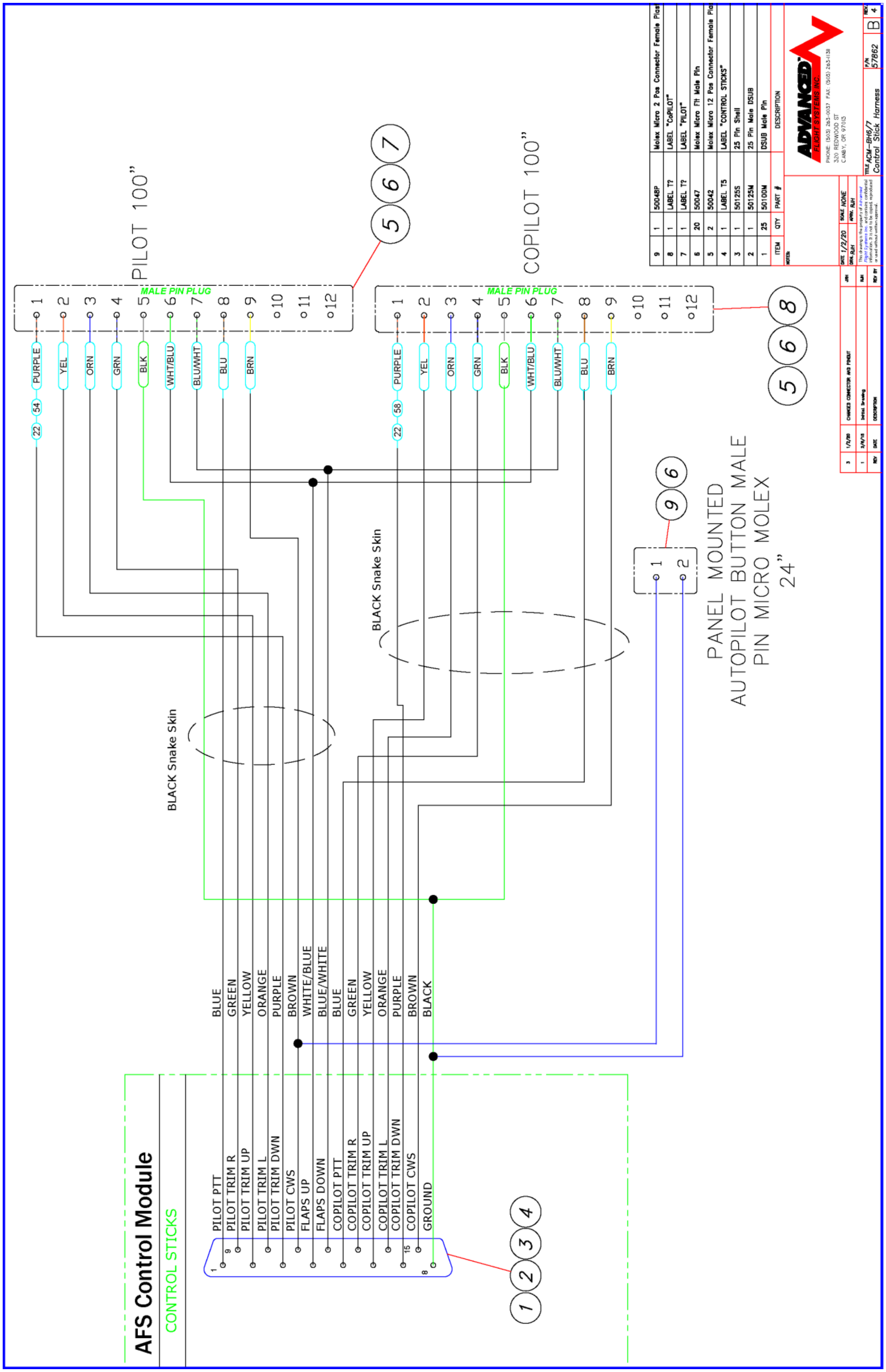
REV	DATE	DESCRIPTION	REV BY
1	4/28/19	Initial Drawing	RJH

TITLE Sportsman BH6/7 Control Stick Harness
P/N 58214-006
REV. 3


Control Stick Harness
BH6/7
HAT SWITCH
(PITCH & ROLL TRIM)
GRIP SWITCH (PUSH TO TALK SWITCH)
Left SWITCH
(CWS)
PITCH DOWN
PITCH UP
ROLL LEFT
ROLL RIGHT
11
1
5
13
14
12
2
6
24
5
BLK
PURPLE
YELLOW
ORN
GRN
BLACK
BLU
BRN
22
36
FEMALE PIN PLUG
1
2
3
4
5
6
7
8
9
10
11
12
36 "
LABEL "STICK"
Molex Micro Fit Female Pin
Molex Micro 12 Pos Connector Male Plastic
DESCRIPTION
PART #
QTY.
ITEM
LABEL TP
50046
50043
ADVANCED FLIGHT SYSTEMS INC.
3200 REDWOOD ST
CAMBY, OR 97013
PHONE (503) 263-0037 FAX (503) 263-1138
TITLE Sportsman Wide Style Control Stick Harness
P/N 58214-007
REV 1


IQ 2082 Float Controller Module
Instrument Panel Mounted
Clamar Supplied Float Wiring
PMA3000 Intercom Pin 4
Harness P/N: 57601
Cage Ground Lug
60A
Alternator CB
15A
Landing Gear CB
18 AWG
8 AWG
ADVANCED Control Module
SV NETWORK
EFIS PFD
XPONDER-GPS-ADSB
NAV-COM 2
AP PANEL
BACKUP BAT
AUDIO PANEL
GPS NAVIGATOR
AP SERVOS
EFIS MFD
BACKUP EFIS
NAV - COM 1
PANEL SWITCHES
AIRCRAFT REAR
AIRCRAFT FRONT
CONTROL STICKS
FLAP-TRIM
Cable Supplied by Glasair
Aircraft BATTERY
ALT SHUNT 60A
ES DIODE MASTER
ES DIODE STARTER
Battery Master RELAY Continuous Duty
Cage Ground Lug
ADVANCED FLIGHT SYSTEMS INC.
TITLE Sportsman Clamar 2082 Float Wiring
P/N 57282


AFS Control Module
CONTROL STICKS
PILOT PTT
PILOT TRIM R
PILOT TRIM UP
PILOT TRIM L
PILOT TRIM DWN
PILOT CWS
FLAPS UP
FLAPS DOWN
COPILOT PTT
COPILOT TRIM R
COPILOT TRIM UP
COPILOT TRIM L
COPILOT TRIM DWN
COPILOT CWS
GROUND
BLUE
GREEN
YELLOW
ORANGE
PURPLE
BROWN
WHITE/BLUE
BLUE/WHITE
BLUE
GREEN
YELLOW
ORANGE
PURPLE
BROWN
BLACK
BLACK Snake Skin
BLACK Snake Skin
PILOT 100"
COPILOT 100"
MALE PIN PLUG
MALE PIN PLUG
PURPLE
YEL
ORN
GRN
BLK
WHT/BLU
BLU/WHT
BLU
BRN
PANEL MOUNTED
AUTOPILOT BUTTON MALE
PIN MICRO MOLEX
24"
ADVANCED FLIGHT SYSTEMS INC.
ACM-BH6/7
Control Stick Harness
57862
B

The Aerosport installation instructions for the 310 panel can be downloaded from the following link:

http://www.aerosportproducts.com/wp-content/uploads/2019/02/RV-10-Panel-Install-Doc.pdf

RV-10 Install Notes

- Do not use Van's optional Flap Positioning System (FPS), the ACM should be doing the flap positioning and Van's FPS is not compatible with the ACM.
- For the ACM to do flap positioning you must have a Ray Allen POS-12 sensor installed on the flaps. You can order the sensor and install kit from Van's P/N: 14 FLAP POSITION KIT
- The ADAHRS 200 and 201 should be mounted using Van's optional ADAHRS mounting bracket. One ADAHRS mounts to the top of the bracket and the backup ADAHRS mounts to the bottom of the bracket using the Dynon Dual ADAHRS mounting bracket. Do not mount the ADAHRS under the tail fairing. Do not mount the backup ADAHRS upside down.

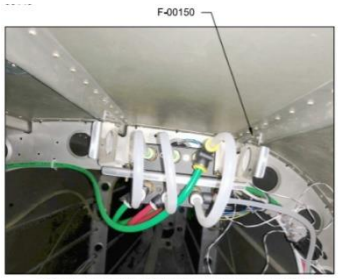
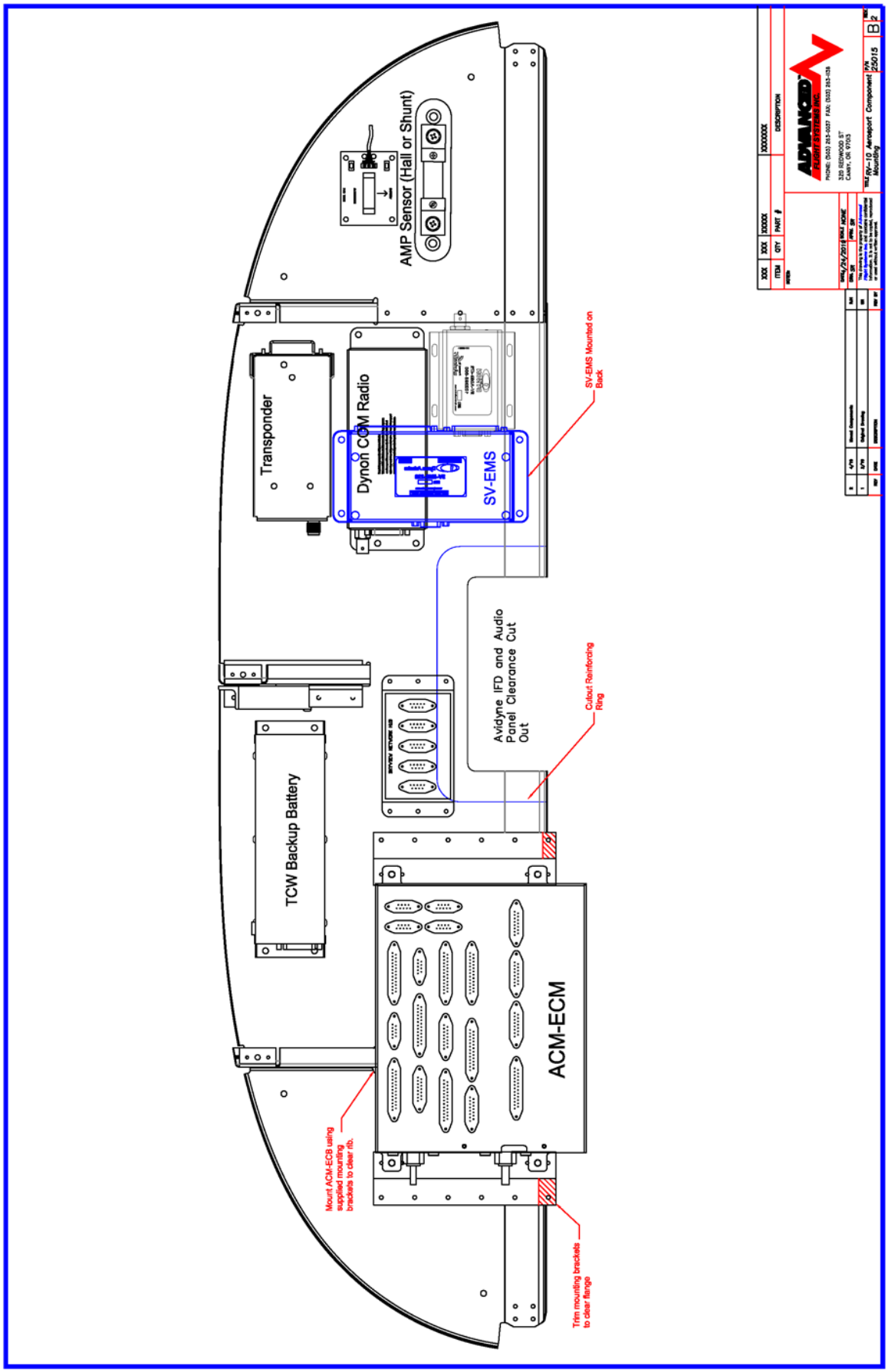
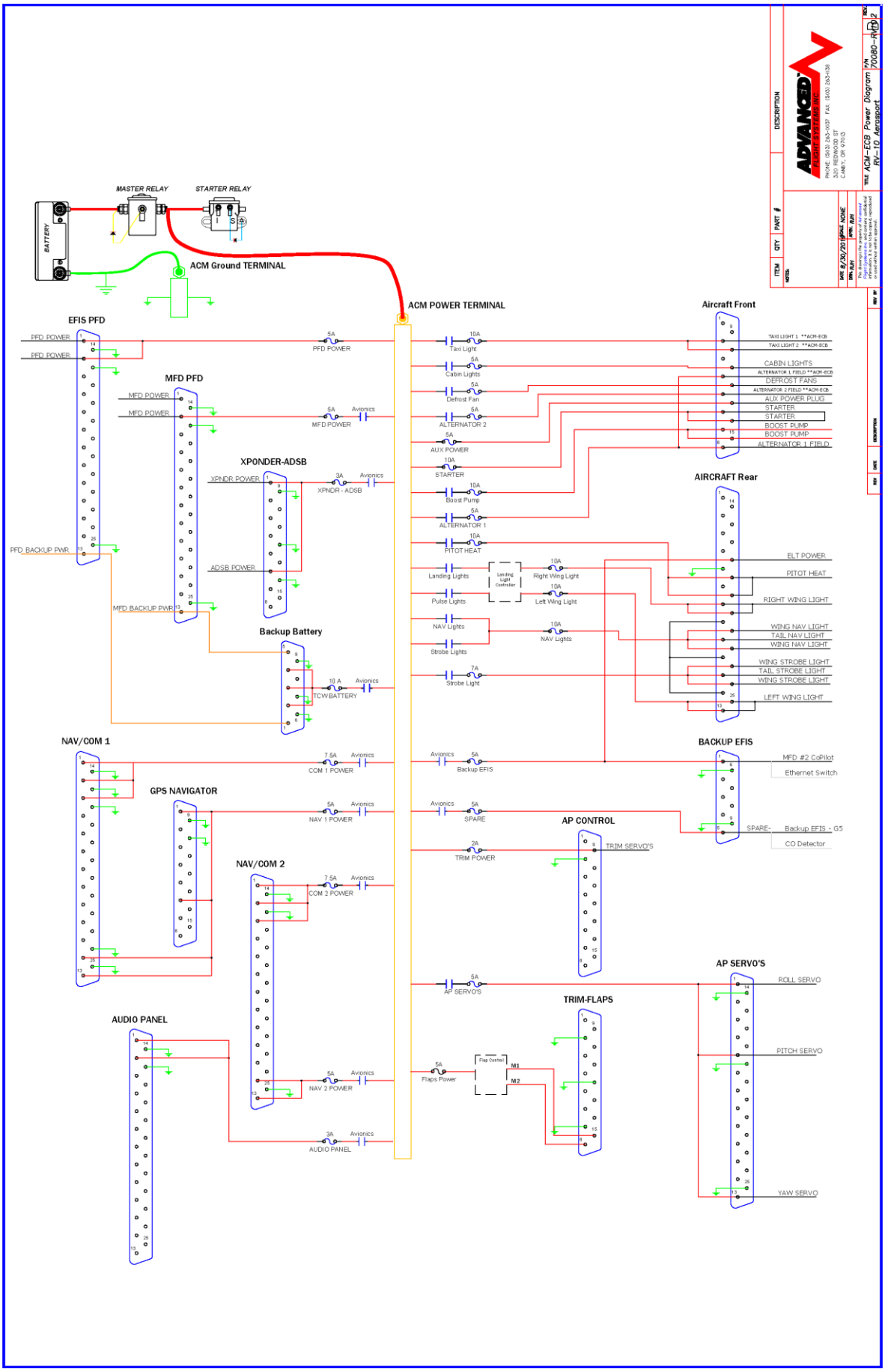
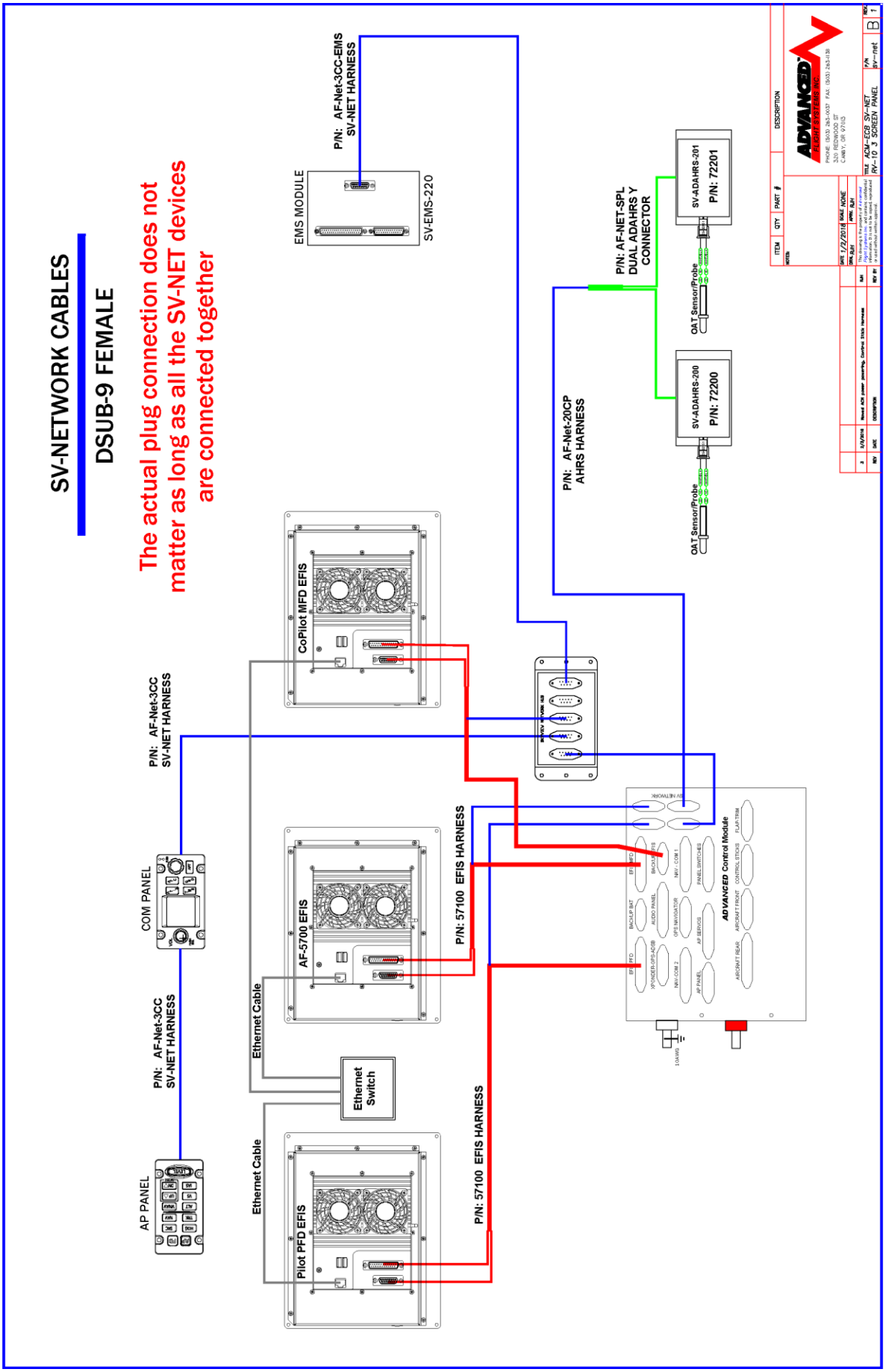


FIGURE 4: F-00150 DUAL ADAHRS INSTALL

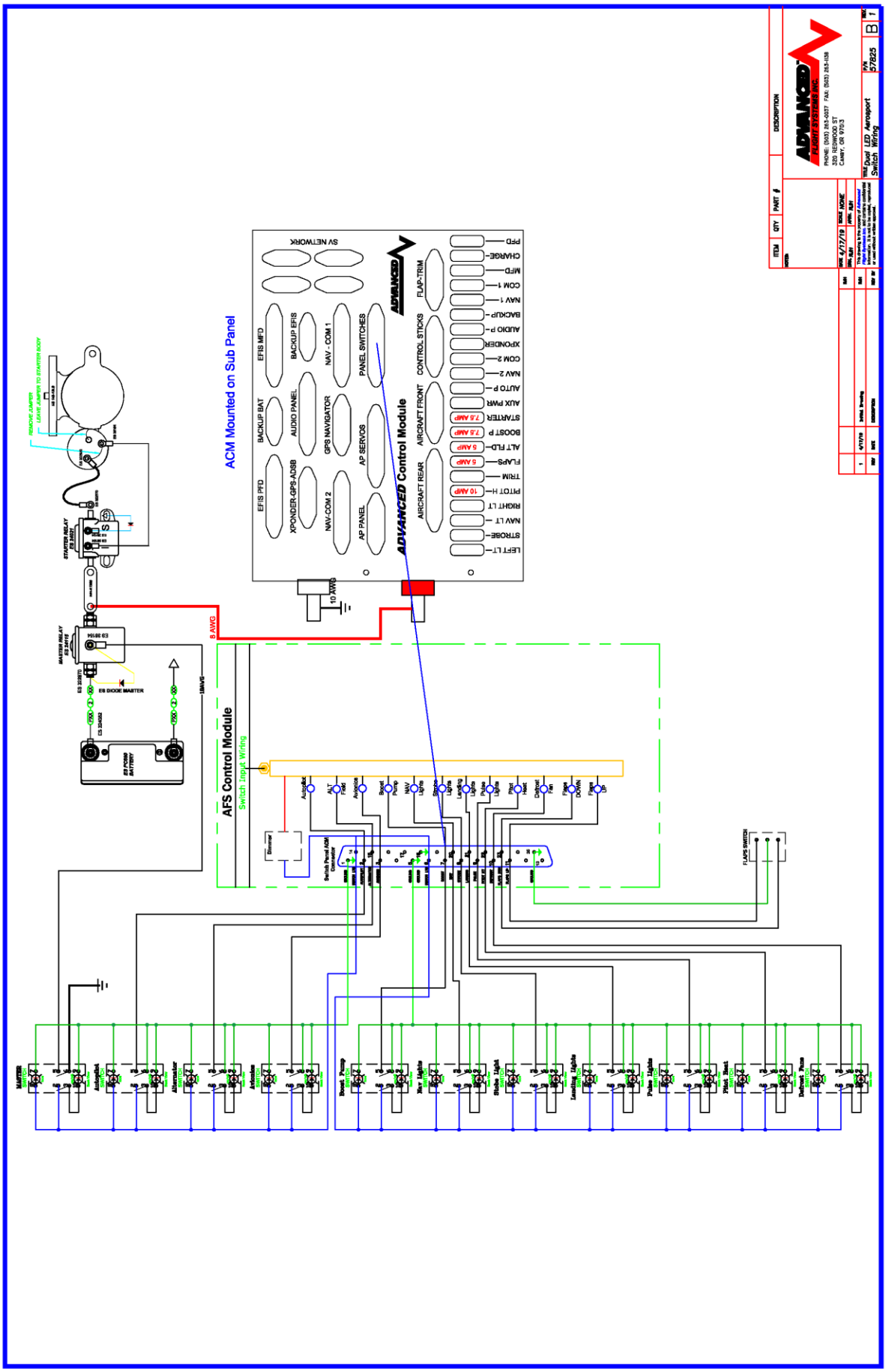

AMP Sensor (Hall or Shunt)
Transponder
Dynon COM Radio
SV-EMS
SV-EMS Mounted on Back
Avidyne IFD and Audio Panel Clearance Cut Out
Cutout Reinforcing Ring
TCW Backup Battery
ACM-ECM
Mount ACM-ECB using supplied mounting brackets to clear rib.
Trim mounting brackets to clear flange

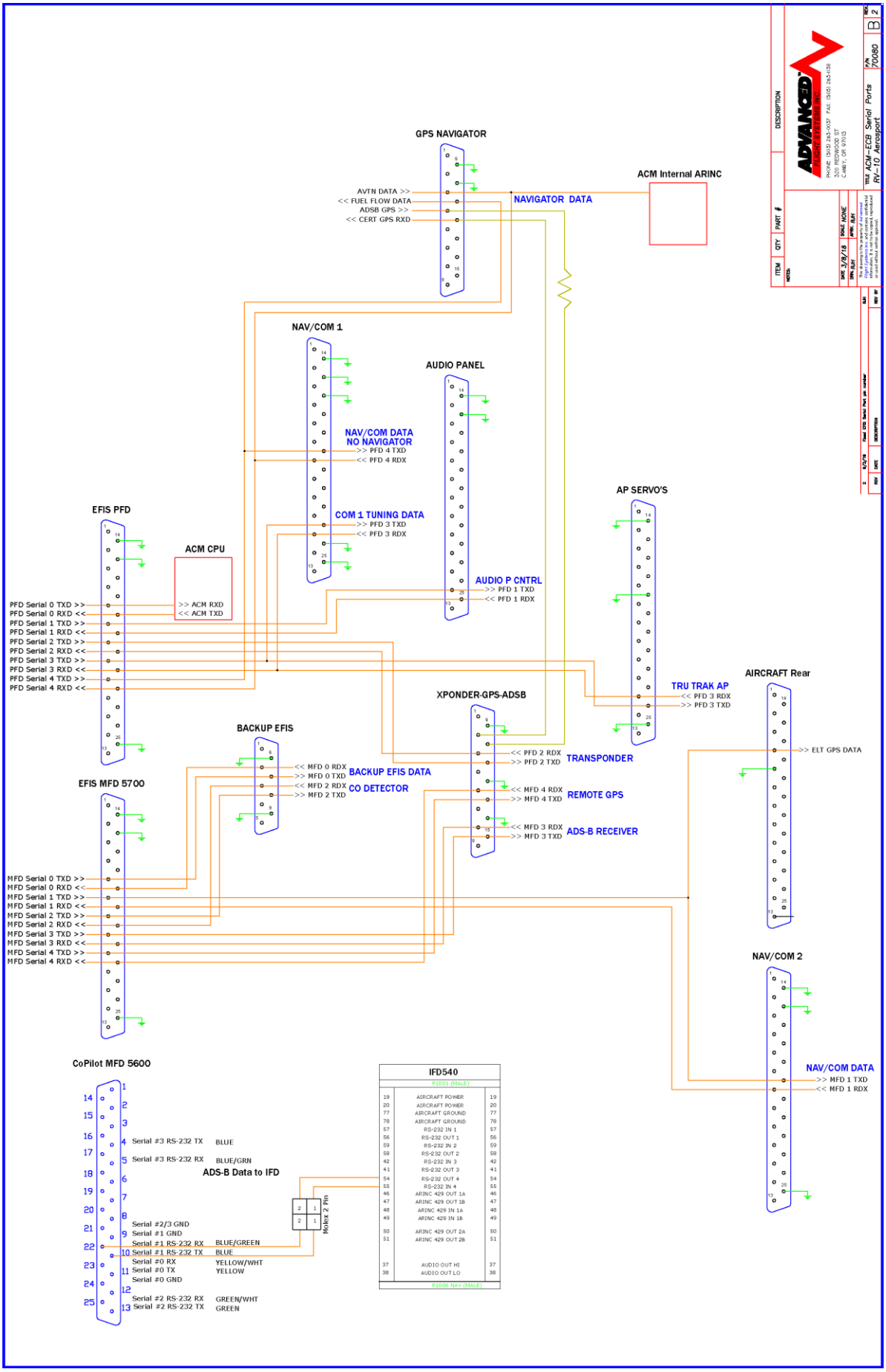
RV-10 Aerosport Power Diagram



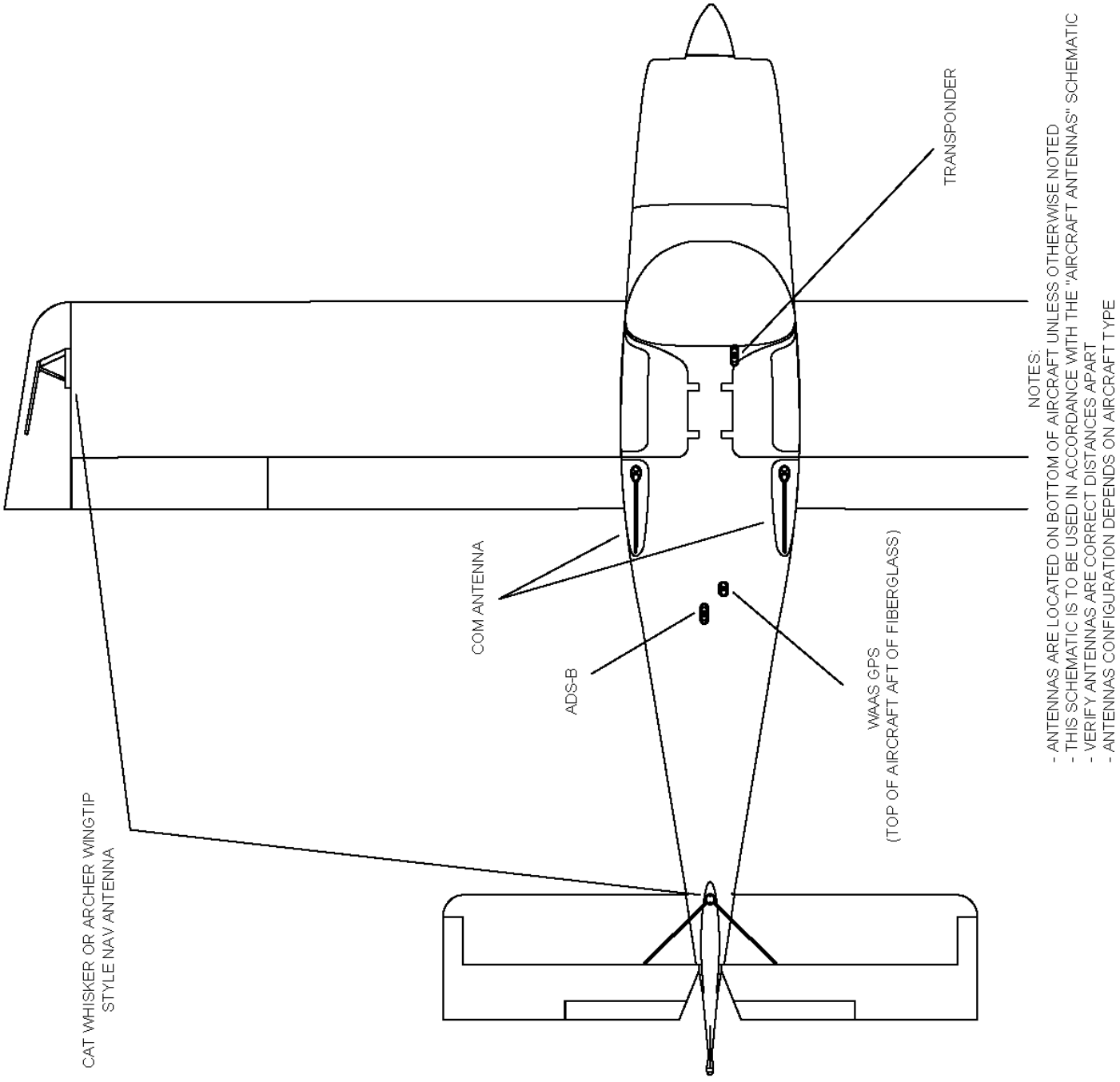

SV-NETWORK CABLES
DSUB-9 FEMALE
The actual plug connection does not matter as long as all the SV-NET devices are connected together
EMS MODULE
SV-EMS-220
P/N: AF-Net-3CC-EMS SV-NET HARNESS
P/N: AF-NET-SPL DUAL ADAHRS Y CONNECTOR
SV-ADAHRS-201 P/N: 72201
SV-ADAHRS-200 P/N: 72200
OAT Sensor/Probe
OAT Sensor/Probe
P/N: AF-Net-20CP AHRS HARNESS
CoPilot MFD EFIS
P/N: AF-Net-3CC SV-NET HARNESS
COM PANEL
AF-5700 EFIS
P/N: 57100 EFIS HARNESS
Ethernet Cable
Ethernet Switch
P/N: AF-Net-3CC SV-NET HARNESS
AP PANEL
Ethernet Cable
Pilot PFD EFIS
P/N: 57100 EFIS HARNESS
ADVANCED Control Module
ADVANCED FLIGHT SYSTEMS INC.
DWG. ACM-ECB SV-NET RV-10 3 SCREEN PANEL

Aerosport Duel LED Switch Wiring




GPS NAVIGATOR
AVTN DATA >>
<< FUEL FLOW DATA
ADSB GPS >>
<< CERT GPS RXD
NAVIGATOR DATA
ACM Internal ARINC
NAV/COM 1
AUDIO PANEL
NAV/COM DATA
NO NAVIGATOR
>> PFD 4 TXD
<< PFD 4 RDX
COM 1 TUNING DATA
>> PFD 3 TXD
<< PFD 3 RDX
AUDIO P CNTRL
>> PFD 1 TXD
<< PFD 1 RDX
AP SERVO'S
EFIS PFD
ACM CPU
>> ACM RXD
<< ACM TXD
PFD Serial 0 TXD >>
PFD Serial 0 RXD <<
PFD Serial 1 TXD >>
PFD Serial 1 RXD <<
PFD Serial 2 TXD >>
PFD Serial 2 RXD <<
PFD Serial 3 TXD >>
PFD Serial 3 RXD <<
PFD Serial 4 TXD >>
PFD Serial 4 RXD <<
TRU TRAK AP
<< PFD 3 RDX
>> PFD 3 TXD
AIRCRAFT Rear
XPONDER-GPS-ADSB
BACKUP EFIS
<< MFD 0 RDX
>> MFD 0 TXD
<< MFD 2 RDX
>> MFD 2 TXD
BACKUP EFIS DATA
CO DETECTOR
<< PFD 2 RDX
>> PFD 2 TXD
TRANSPONDER
<< MFD 4 RDX
>> MFD 4 TXD
REMOTE GPS
<< MFD 3 RDX
>> MFD 3 TXD
ADS-B RECEIVER
>> ELT GPS DATA
EFIS MFD 5700
MFD Serial 0 TXD >>
MFD Serial 0 RXD <<
MFD Serial 1 TXD >>
MFD Serial 1 RXD <<
MFD Serial 2 TXD >>
MFD Serial 2 RXD <<
MFD Serial 3 TXD >>
MFD Serial 3 RXD <<
MFD Serial 4 TXD >>
MFD Serial 4 RXD <<
NAV/COM 2
NAV/COM DATA
>> MFD 1 TXD
<< MFD 1 RDX
CoPilot MFD 5600
Serial #3 RS-232 TX
BLUE
Serial #3 RS-232 RX
BLUE/GRN
ADS-B Data to IFD
Serial #2/3 GND
Serial #1 GND
Serial #1 RS-232 RX
BLUE/GREEN
Serial #1 RS-232 TX
BLUE
Serial #0 RX
YELLOW/WHT
Serial #0 TX
YELLOW
Serial #0 GND
Serial #2 RS-232 RX
GREEN/WHT
Serial #2 RS-232 TX
GREEN
Molex 2 Pin
IFD540
P1001 (MALE)
AIRCRAFT POWER
AIRCRAFT POWER
AIRCRAFT GROUND
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 IN 2
RS-232 OUT 2
RS-232 IN 3
RS-232 OUT 3
RS-232 OUT 4
RS-232 IN 4
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
ARINC 429 OUT 2A
ARINC 429 OUT 2B
AUDIO OUT HI
AUDIO OUT LO
P1006 NAV (MALE)
TITLE ACM-ECB Serial Ports
RV-10 Aerosport
P/N 70080
ADVANCED FLIGHT SYSTEMS INC.

RV-10 Antenna Locations



ACM Flap Control – AF-5000

The ACM flap control can be configured from the PFD EFIS calibration menu:

SET > CAL > 44. Flap Position

7. Operation Mode:

POSTION
Flaps will stop at the programed Position Calibration points (FULL UP, POSITION 1, POSITION 2, FULL DOWN). You must have a POS-12 position sensor installed and working to use position mode. Move the flaps to each position and use the COPY and SAVE buttons to record the position. *If the AD_VAL in the upper right hand EFIS screen corner does not change when you move the flaps you do not have the POS-12 correctly wired.*

MOMENTARY
Flaps will only move when you hold the Flap Up or Flap Down button. Momentary mode does not require a flap sensor.

8. Retract Mode:

MULTI-STEP
Flaps will move to the next position when the Flaps Up button is pressed

CONTINUOUS
Flaps will move to fully retracted position when the Flaps Up button is pressed

MOMENTARY
Flaps will only move when you hold the Flap Up button.

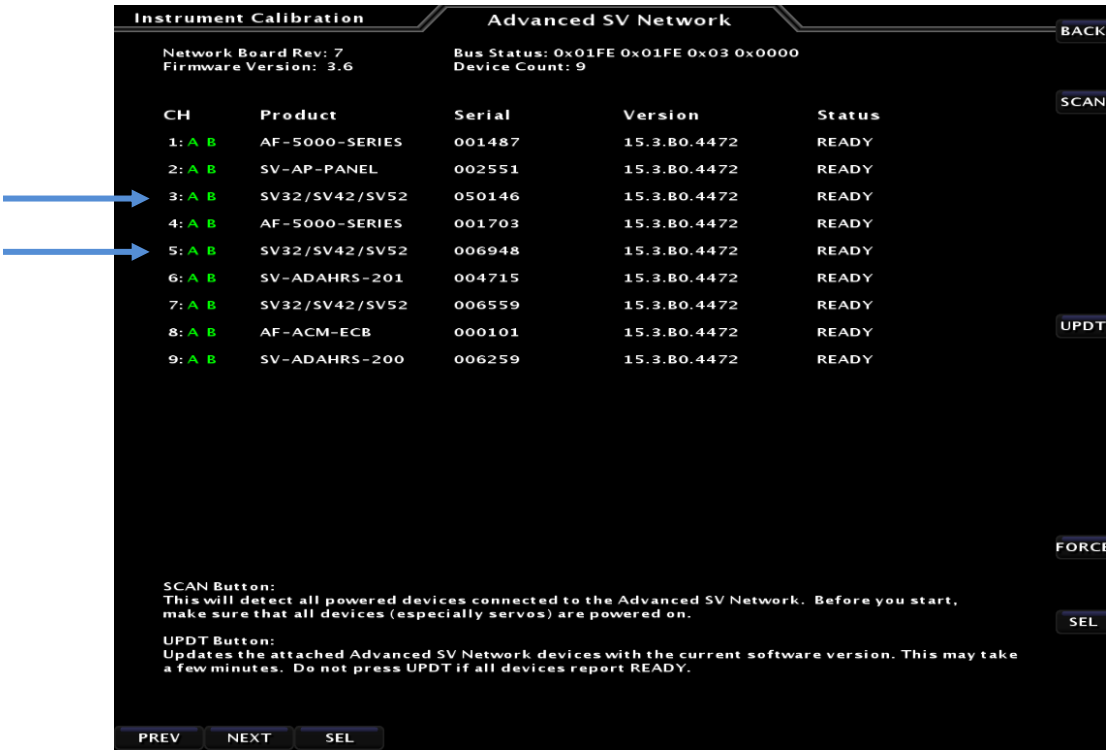
9. Motor Polarity (NORMAL or REVERSED) Verify that the Flaps move in the correct direction using the EFIS **CHECK** > **ELEC** menu buttons. If the Stick mounted buttons are backwards you will need to swap the stick Up and Down button wiring.

10. Endpoint Slop Timeout The Flap Motor will continue to run for this number of seconds to make sure the flaps are fully retracted or extended. The flap positioning system should not be used to provide an accurate position stop for full flap up or down settings.

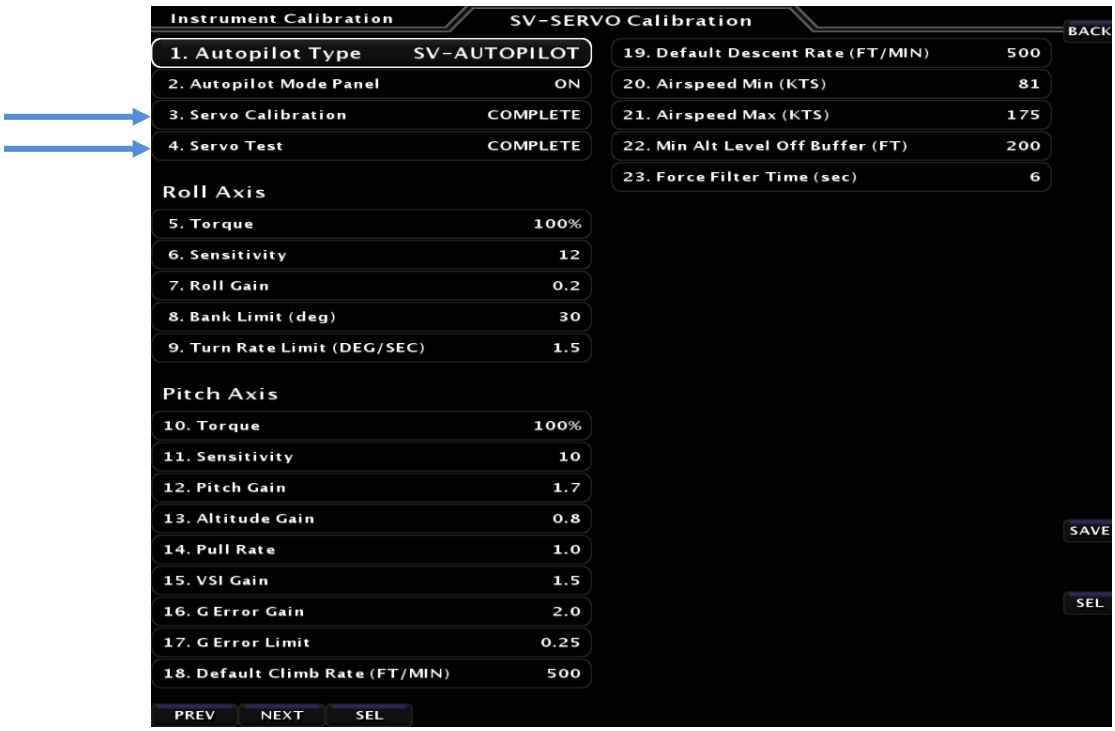
SV Autopilot Setup

To configure the SV Autopilot you will need to do the following:

1. Verify that the ROLL and Pitch AP Servo Status is READY in the SV-NETWORK PFD EFIS Menu. If the Status shows needs update press the **UPDT** button



2. Perform the **3. Servo Calibration** and **4. Servo Test** following the PFD EFIS on screen directions. After completing these steps both items ***MUST*** show **COMPLETE** before the Autopilot can be used. The following settings are from a Van's RV-14 and RV-10.



Advanced Control Module AF-GPS Routing Table

AFS GPS	Cable Color	DSUB-9	ACM 15 Pin ACM: XPND,GPS,ADSB	ACM 25 Pin ACM: MFD	EFIS MFD AUX 15 Pin
PWR +8V	Orange	1	4	12	1
Ground	Black	5	12	24	9
RS-232 TXD	Blue/Gray	3	5	22	10
RS-232 RXD	Orange/Gray	2	13	9	2

Advanced Control Module Skyview EFIS Audio Routing Table

Skyview PFD Function	Cable Color	Skyview DSUB-37	ACM 25 Pin ACM: PFD	ACM 25 Pin Audio Panel	SV-INTERCOM DSUB-25
Audio Left	Brown	13	11	11	19
Audio Right	Gray	31	10	10	6
Audio Ground	Black	30	23	23	20

Advanced Control Module AF-5000 EFIS Audio Routing Table

AF-5000 PFD Function	Cable Color	AF-5000 DB-25	ACM 25 Pin ACM: PFD	ACM 25 Pin Audio Panel	PDA-360 Audio P J1
Audio		18	11	11	J1-31
Audio Ground		16	23	23	J1-32

Advanced Control Module ADS-B Routing Table

AFS ADS-B	Cable Color	DSUB-9	ACM 15 Pin ACM: XPND,GPS,ADSB	ACM 25 Pin ACM: MFD	EFIS MFD Serial #3 DSUB 25 Pin
PWR +12V	Red	1	6	nc	nc
Ground		4	14	nc	nc
RS-232 TXD		3	7	21	5
RS-232 RXD		2	15	8	4

Advanced Control Module CO Detector Routing Table

CO Guardian	Cable Color	CO DSUB-9	ACM 9 Pin ACM: BACKUP EFIS	ACM 25 Pin ACM: MFD	EFIS MFD Serial #2 DSUB 25 Pin
PWR +12V	Red	1	5	nc	nc
Ground	Black	5	9	nc	nc
RS-232 TXD >>		7	3	20	25
RS-232 RXD <<		8	8	7	13

Advanced Control Module RV-14 Pitch Servo Routing Table

Pitch Servo	Cable Color	Servo Molex C411P/C431J	Rear Bulkhead Molex C432P/C432J	ACM Servo DSUB-25
Data 1A	Green	1	1	6
Data 2B	WHT/BLU	3	3	20
CW Steering	Yellow	4	4	8
Data 1B	Blue	5	5	19
PWR +12V	Red	6	6	5
Data 2A	WHT/GRN	7	7	7
Ground	BLK	9	9	18

Advanced Control Module Transponder to IFD GPS Routing Table

IFD	ACM-GPS NAV	ACM Resistor	ACM-XPNDER	Transponder
P1001-58	4	1.1 K	11	3

Electronic Ignitions

The following example drawings are provided for reference only. You should use the latest manuals and drawings from your engine and ignition system manufacturer when planning and wiring your aircraft.

EMAG Air

https://emagair.com/

EMAG Ignition Panel Requirements

1. Ignition Power Switch Left**
2. Ignition Circuit Breaker Left** (3 amp for 4 Cylinder, 5 amp for 6 Cylinder)
3. Ignition Power Switch Right**
4. Ignition Circuit Breaker Right** (3 amp for 4 Cylinder, 5 amp for 6 Cylinder)
5. Key Switch for PLEADs or individual toggle switches

AFS has a standard Master Switch Module with EMAG circuit breaker switches installed
**Can be combined with a circuit breaker switch

RPM Signal Connection

+12V signal, connect to SV-EMS standard RPM inputs without resistor

SV-EMS Pins

32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right

Lightspeed

https://lightspeed-aero.com

Dual Lightspeed Ignition with TCW backup battery panel requirements

1. Pull-able breaker right ignition (4-cyl systems use 5 Amps and 6-cyl systems use 7.5 Amps)
2. Pull-able breaker TCW Pass-Thru power 7.5 Amps
3. Pull-able breaker TCW charge power 5 Amps
4. Dual pole Ignition backup power switch – Green LED does not dim
5. Key Switch for PLEADs or individual toggle switches
6. Qty 2 Low voltage ignition status LED warning lights P/N: 5100H1LC (.25" Mounting holes)
   https://www.digikey.com/en/products/detail/visual-communications-company-vcc/5100H1LC/59900

RPM Signal Connection

+12V signal, connect to SV-EMS standard RPM inputs without resistor

SV-EMS Pins

32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right

Dual Lightspeed Ignition with lead acid backup battery panel requirements

1. Pull-able breaker right ignition (4-cyl systems use 5 Amps and 6-cyl systems use 7.5 Amps)
2. Pull-able breaker left ignition (4-cyl systems use 5 Amps and 6-cyl systems use 7.5 Amps)
3. Pull-able breaker 10 Amp for ignition backup battery charge
4. Backup power selector switch
5. Remote charge diode P/N: 90SQ030
6. Key Switch for PLEADs or individual toggle switches
7. Qty 2 Low voltage ignition status LED warning lights P/N: 5100H1LC (.25" Mounting holes)
   https://www.digikey.com/en/products/detail/visual-communications-company-vcc/5100H1LC/59900

RPM Signal Connection

+12V signal, connect to SV-EMS standard RPM inputs without resistor

SV-EMS Pins

32	White/Green	Standard RPM LEFT
33	White/Blue	Standard RPM Right

SureFly – Lycoming EIS

https://www.surefly.aero

Dual SureFly Ignitions must have a backup battery on the right EIS. The dual EIS with TCW backup battery panel requirements:

1. Remote in-line 10 Amp fuse for Left ignition, wired near aircraft battery.
2. Pull-able breaker for TCW Pass-Thru and charge power 7.5 Amps Label "RT IGN PWR"
3. Dual pole ignition backup power switch with green LED Label: "RT IGN B/U PWR"
4. Panel mounted RED "LOW VOLTAGE" warning LED indicator
5. Key Switch for PLEADs or individual toggle switches

RPM Signal Connection

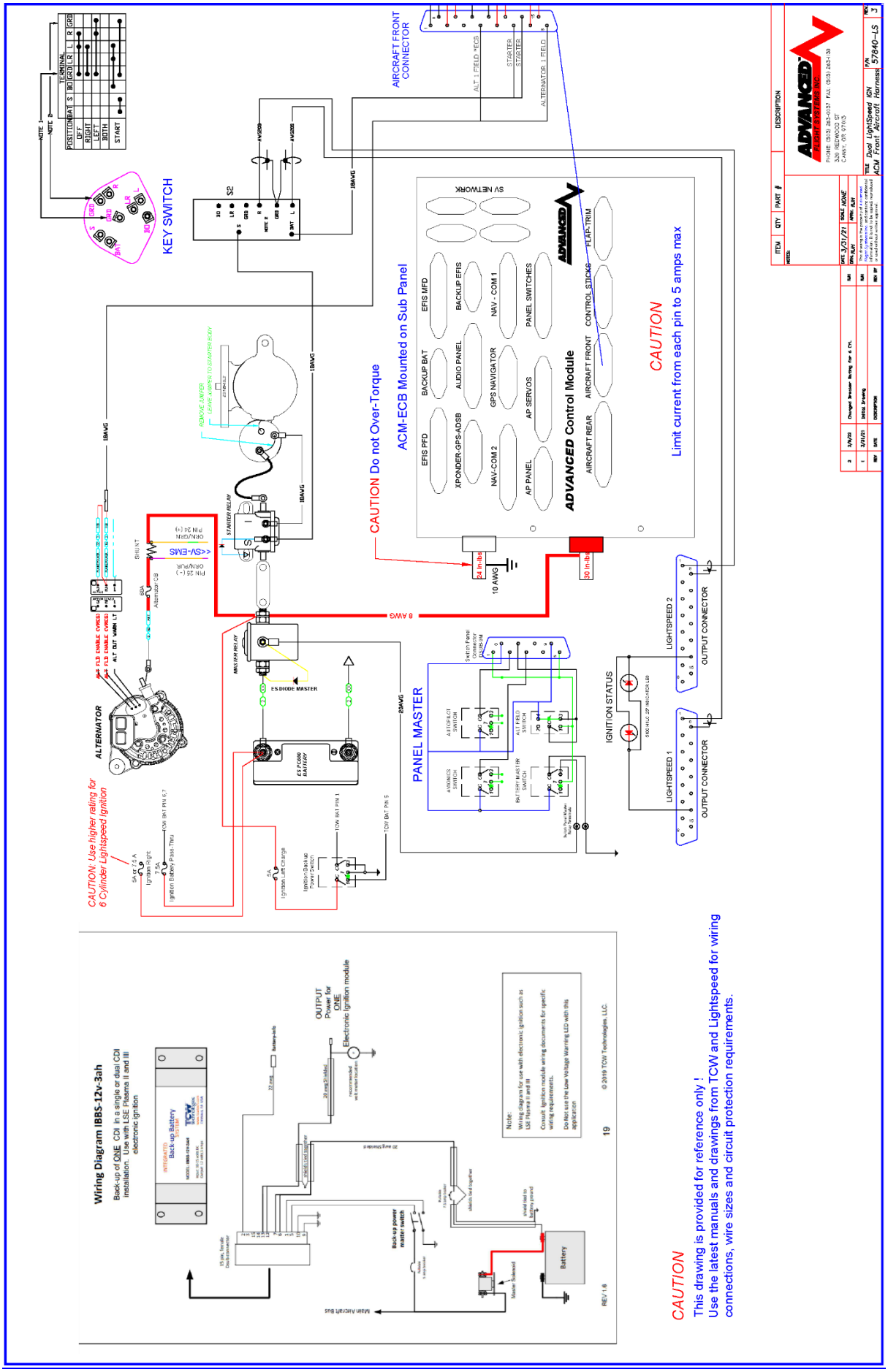
Requires SureFly RPM TACH2 Tachometer Signal Converter

+5V signal, connect to SV-EMS Low voltage RPM inputs without resistor

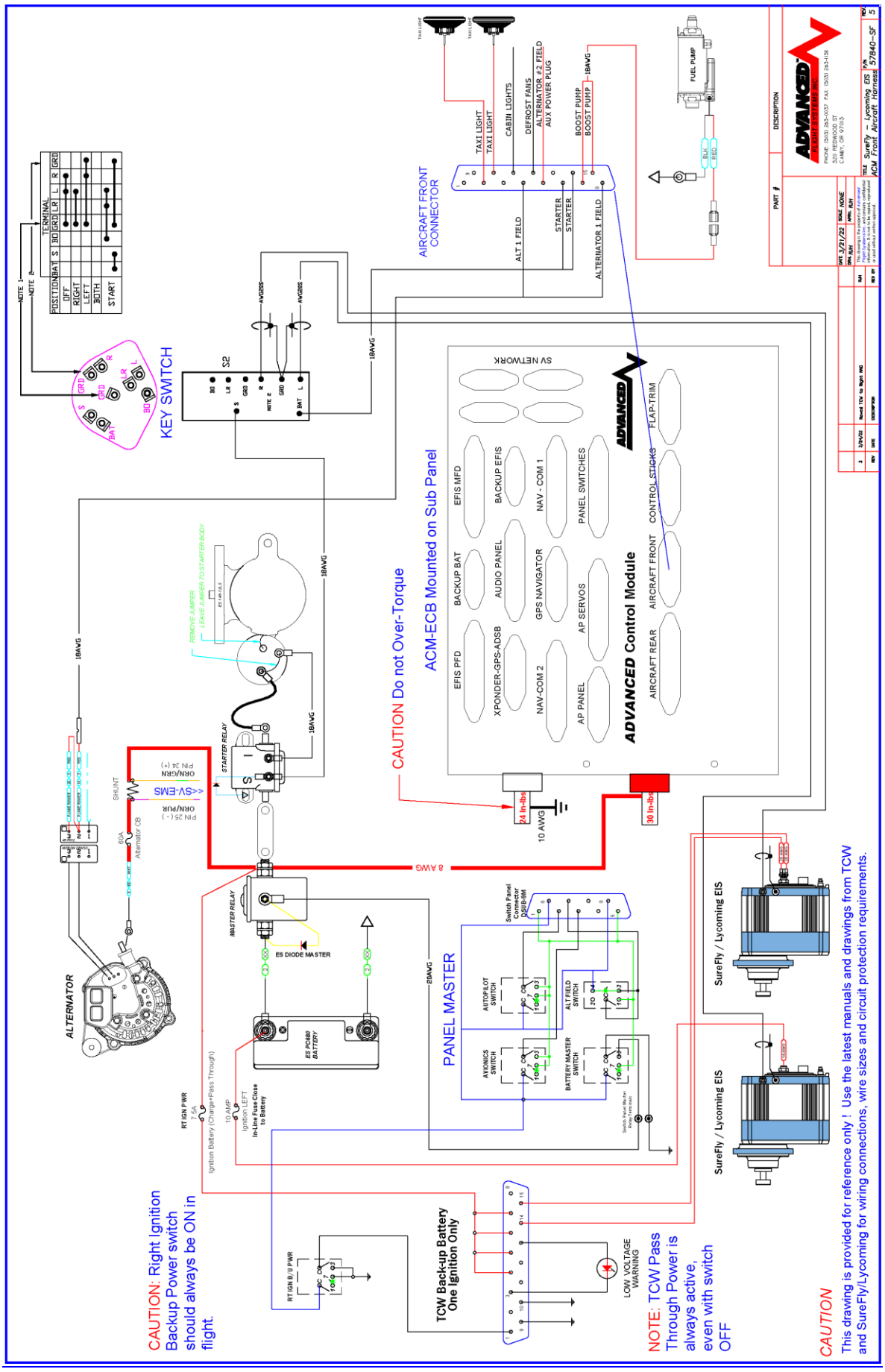
SV-EMS Pins

34	Blue	Low Voltage RPM LEFT
35	Green	Low Voltage RPM Right

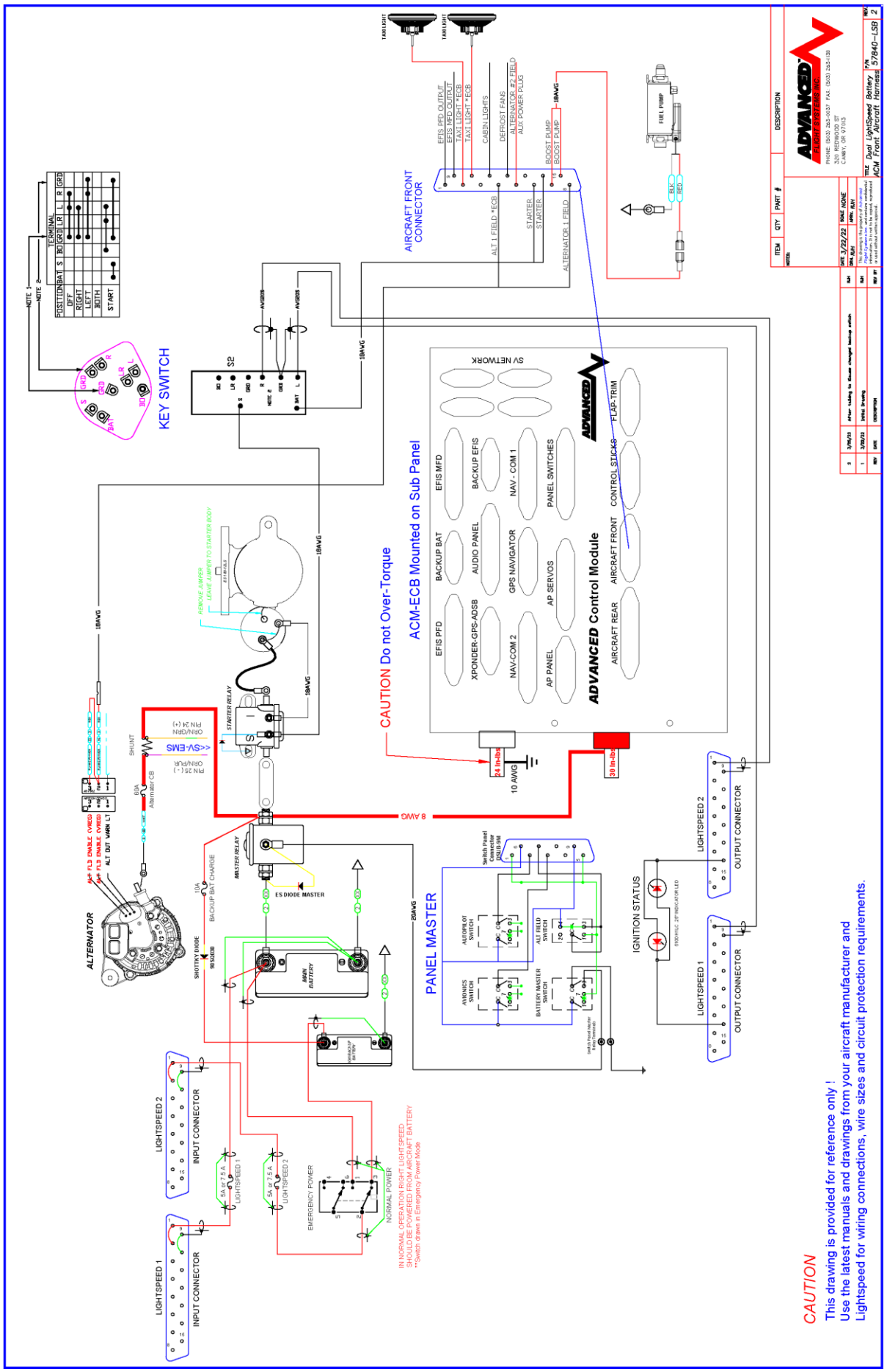
P/N: 57840-LS Dual Lightspeed with TCW Example Wiring

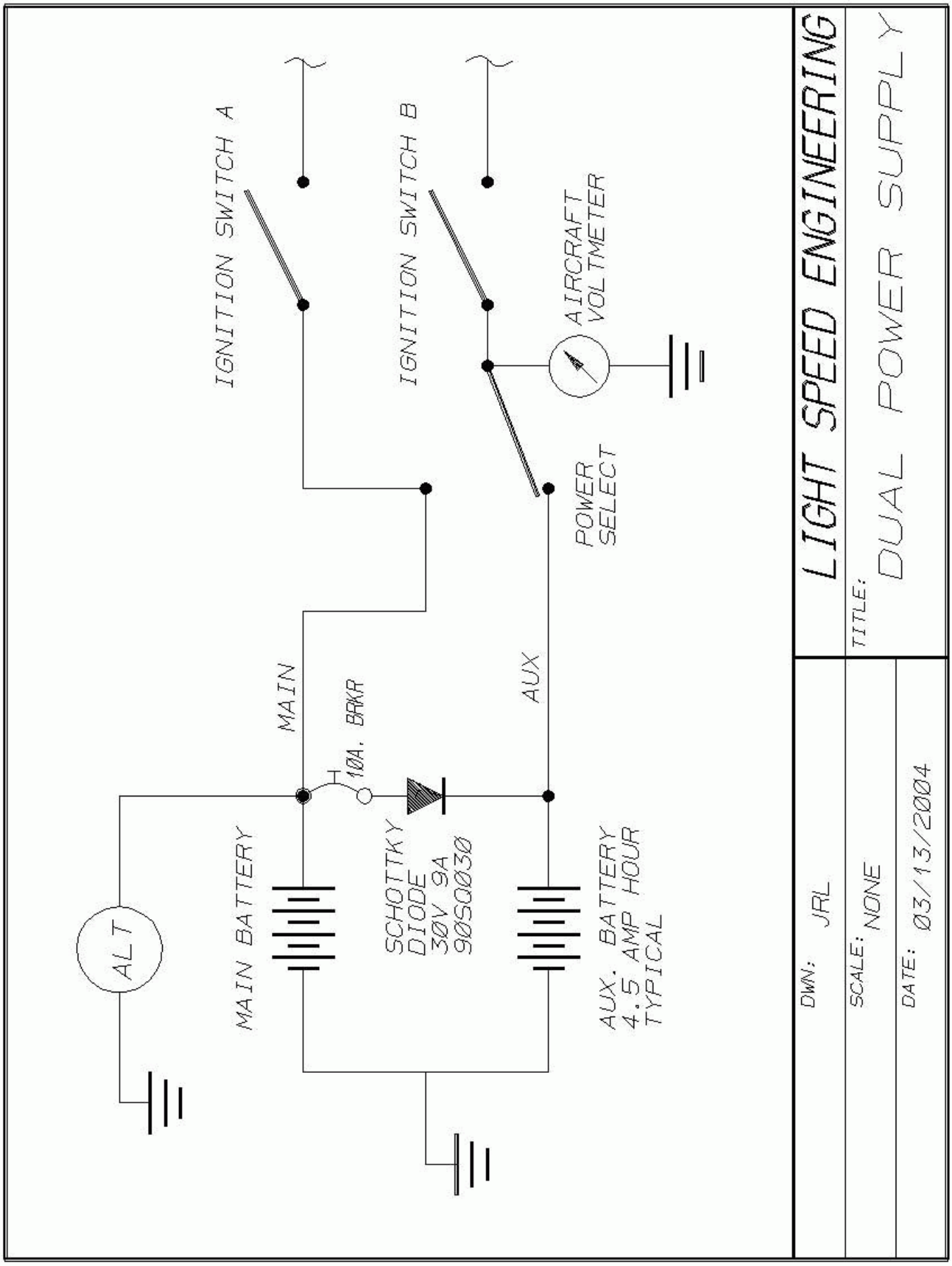


P/N: 57840-SF Dual SureFly with TCW Example Wiring



P/N: Dual Lightspeed with Backup Battery Example Wiring




LIGHT SPEED ENGINEERING
TITLE:
DUAL POWER SUPPLY
DWN: JRL
SCALE: NONE
DATE: 03/13/2004
IGNITION SWITCH A
IGNITION SWITCH B
AIRCRAFT VOLTMETER
POWER SELECT
MAIN
AUX
10A. BRKR
SCHOTTKY DIODE 30V 9A 90S030
ALT
MAIN BATTERY
AUX. BATTERY 4.5 AMP HOUR TYPICAL

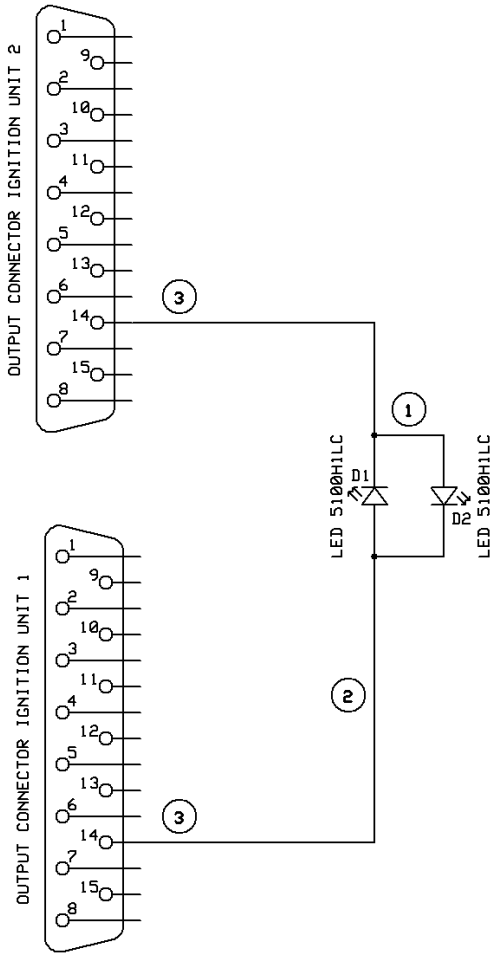
INDICATION:

SYST 1 AND SYST 2 "OFF" = NO LIGHT

SYST 1 AND SYST 2 "ON" = NO LIGHT

SYST 1 "ON" AND SYST 2 "OFF" = D1 LIGHT ON

SYST 1 "OFF" AND SYST 2 "ON" = D2 LIGHT ON



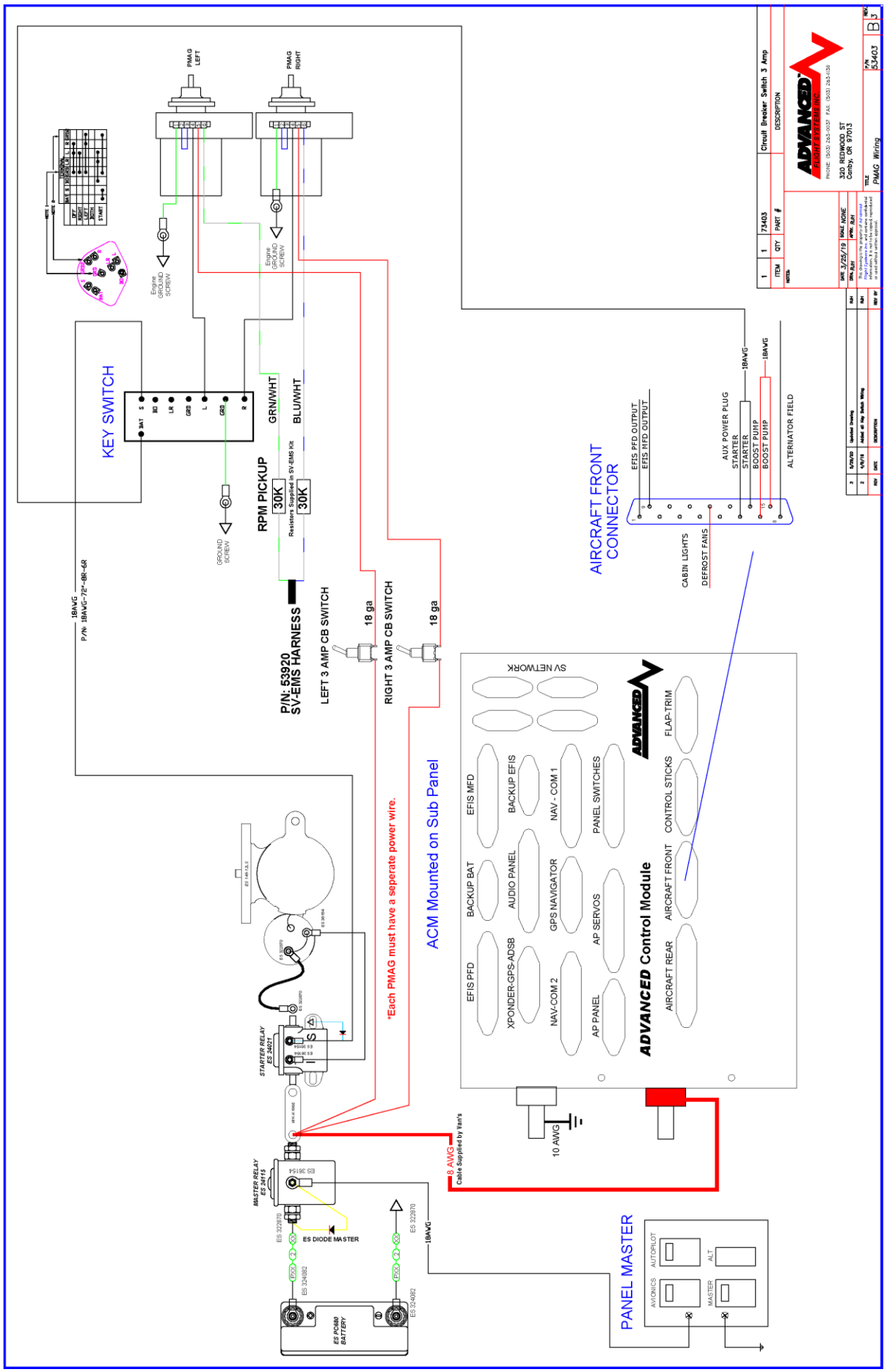
(1) INSTALL TWO 1.8V LOW CURRENT RED LED LIGHTS ABOVE OR BELOW IGNITION SWITCH(ES).
LED PART NUMBER: 5100H1LC
LEDs HAVE A (+) AND A (-) LEAD AND MUST BE INSTALLED WITH OPPOSITE POLARITY.

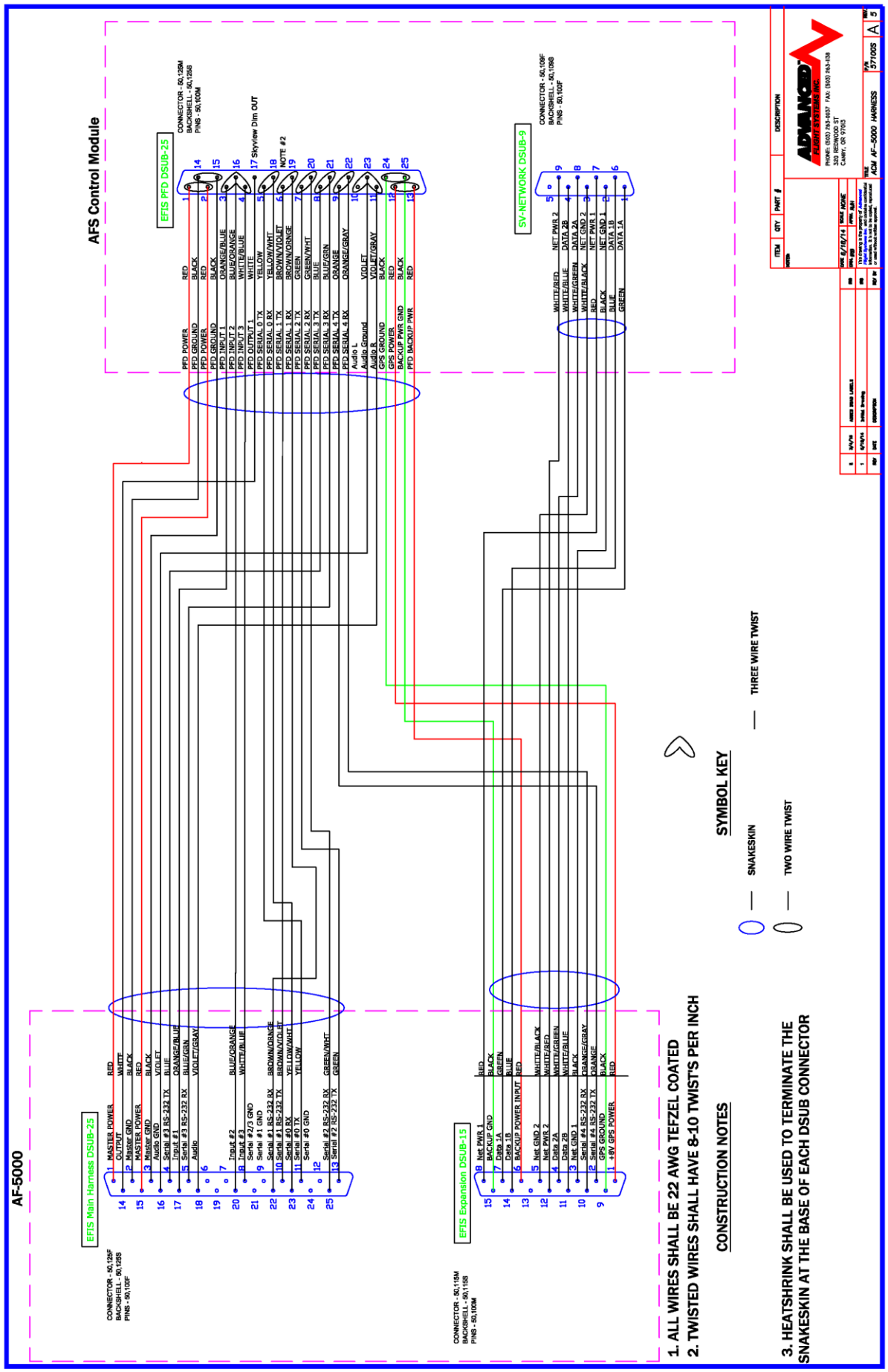
(2) USE MINIMUM #24 AWG STRANDED WIRE.

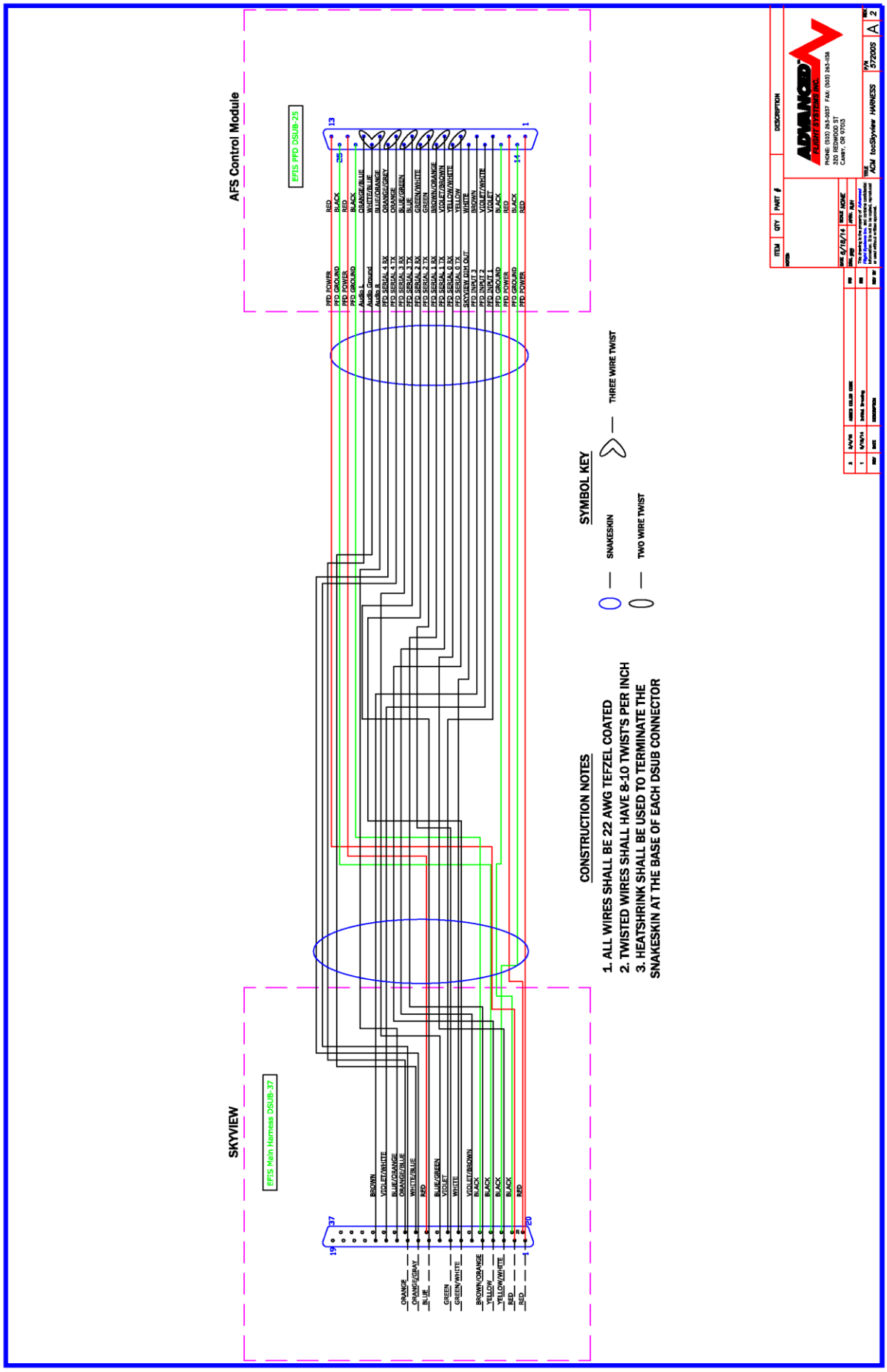
(3) PIN 14 MAY ALSO BE USED TO SUPPLY LCD DISPLAY POWER.

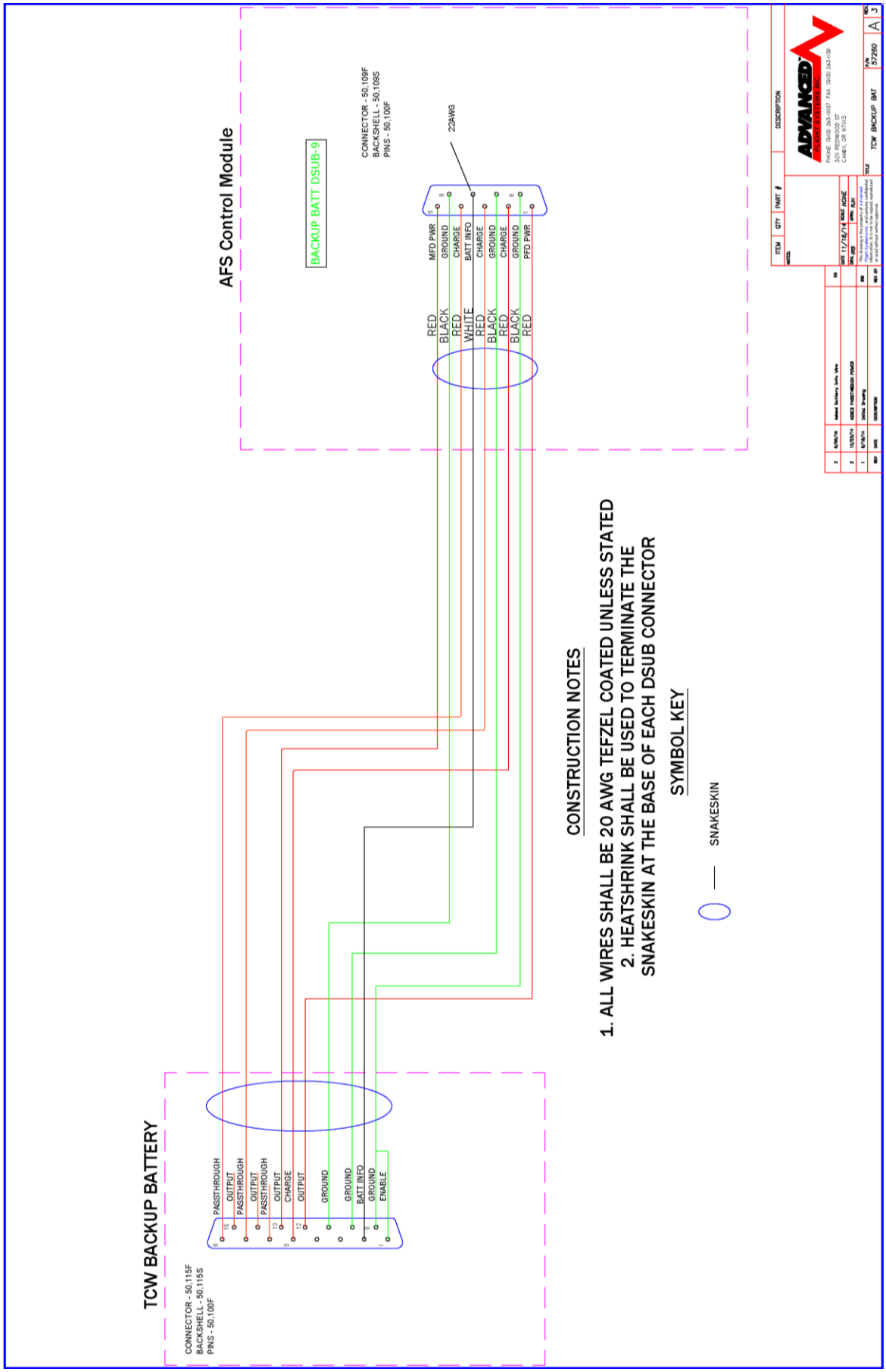
Light Speed Engineering, LLC		
Dual Ignition Indicator Lights		
Klaus	Rev 1.4 2/22/2009	Page 1/1

P/N: 53403 EMAG Wiring

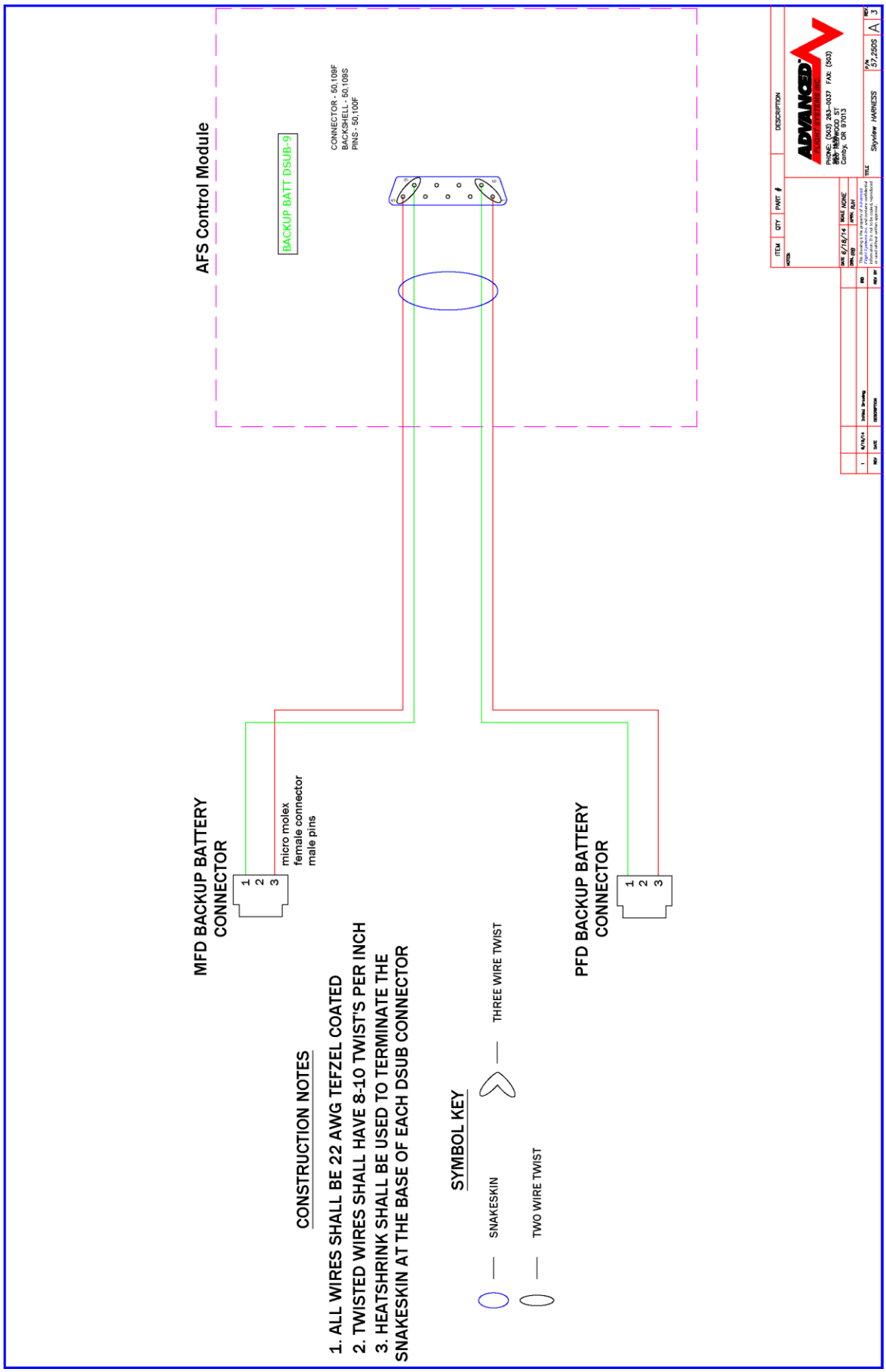


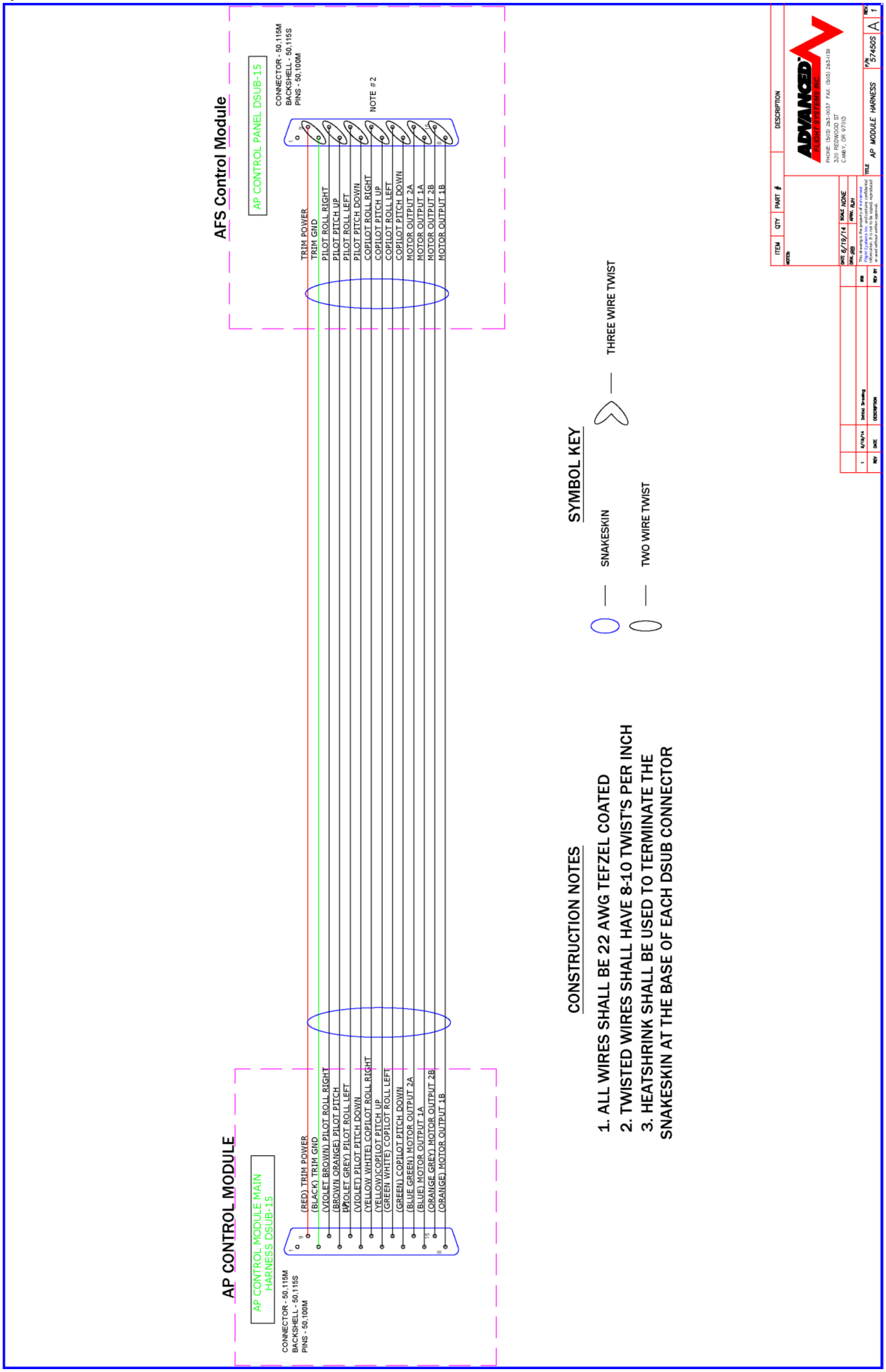

AF-5000
AFS Control Module
EFIS Main Harness DSUB-25
CONNECTOR - 50.125F
BACKSHELL - 50.125S
PINS - 50.105F
EFIS Expansion DSUB-15
CONNECTOR - 50.115M
BACKSHELL - 50.115S
PINS - 50.104M
EFIS PFD DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.103M
SV-NETWORK DSUB-9
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.102F
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
CONSTRUCTION NOTES
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ADVANCED FLIGHT SYSTEMS INC.
ACM AF-5000 HARNESS
57100S

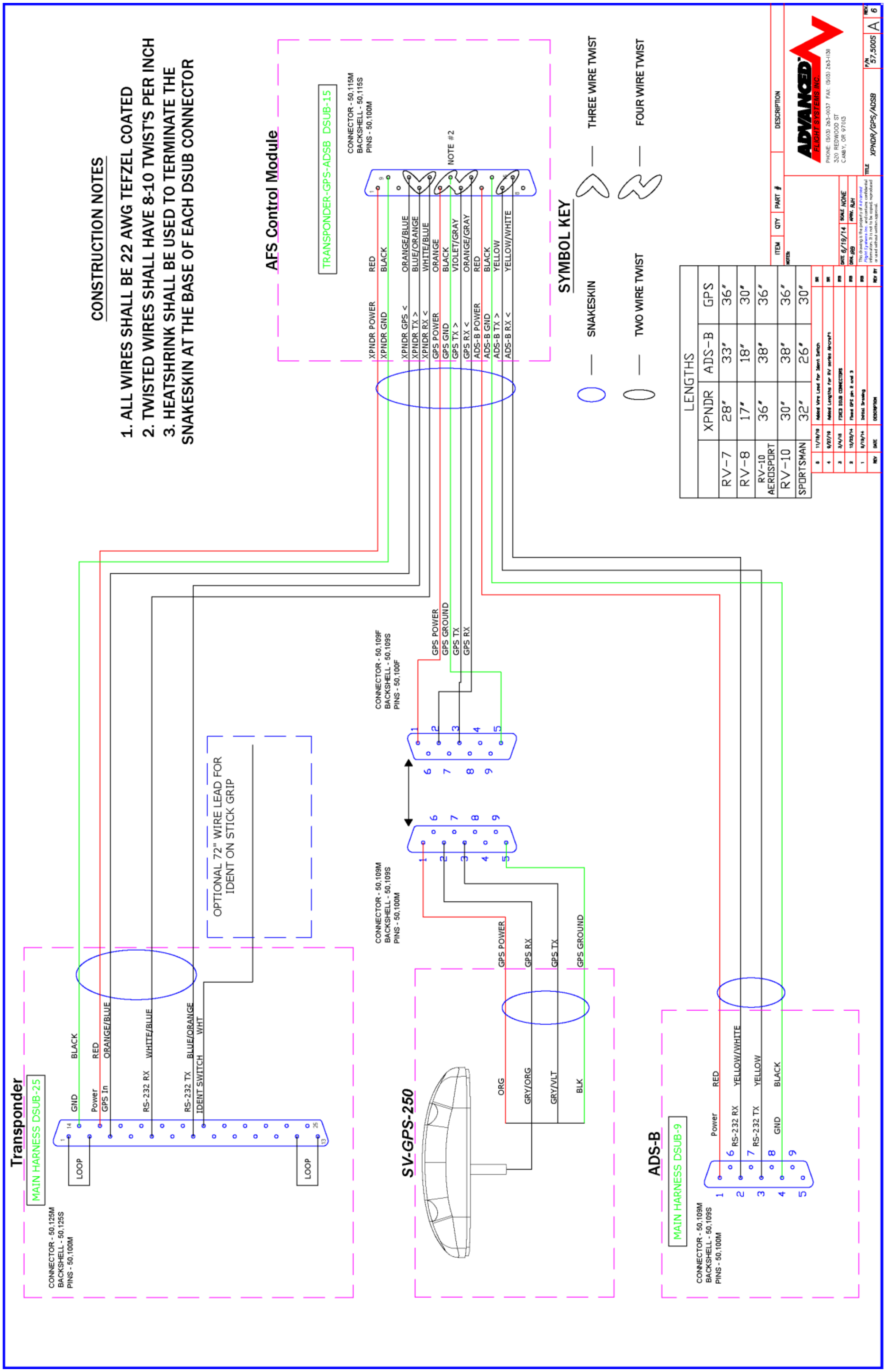

AFS Control Module
EFIS PFD DSUB-25
SKYVIEW
EFIS Main Harness DSUB-37
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR

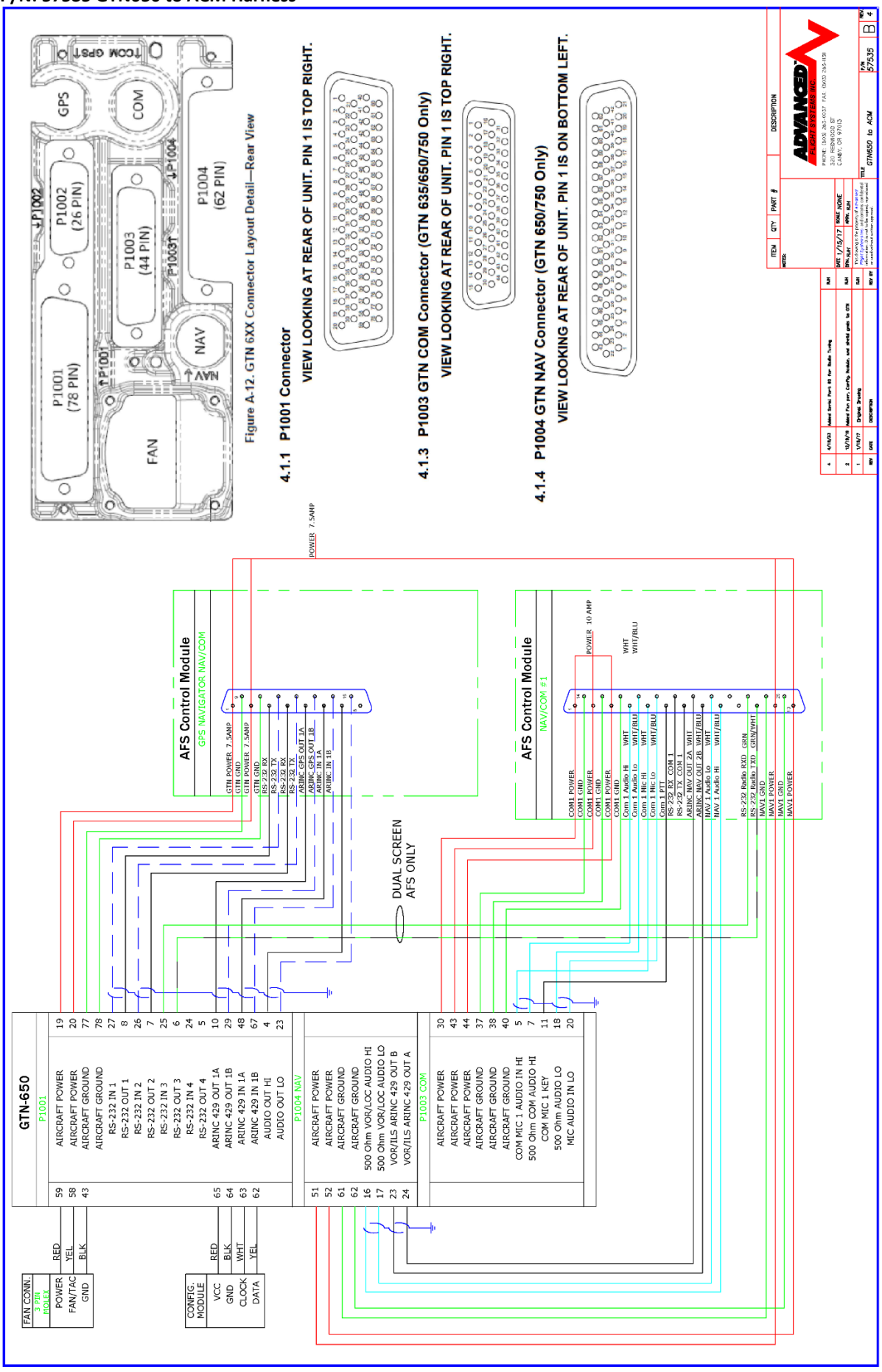

AFS Control Module
BACKUP BATT DSUB-9
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
22AWG
MFD PWR
GROUND
CHARGE
BATT INFO
CHARGE
GROUND
CHARGE
GROUND
PFD PWR
RED
BLACK
RED
WHITE
RED
BLACK
RED
BLACK
RED
TCW BACKUP BATTERY
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
PASSTHROUGH
OUTPUT
PASSTHROUGH
OUTPUT
PASSTHROUGH
OUTPUT
CHARGE
OUTPUT
GROUND
GROUND
BATT INFO
GROUND
ENABLE
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 20 AWG TEFZEL COATED UNLESS STATED
2. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
ADVANCED FLIGHT SYSTEMS INC.
TCW BACKUP BAT
57260

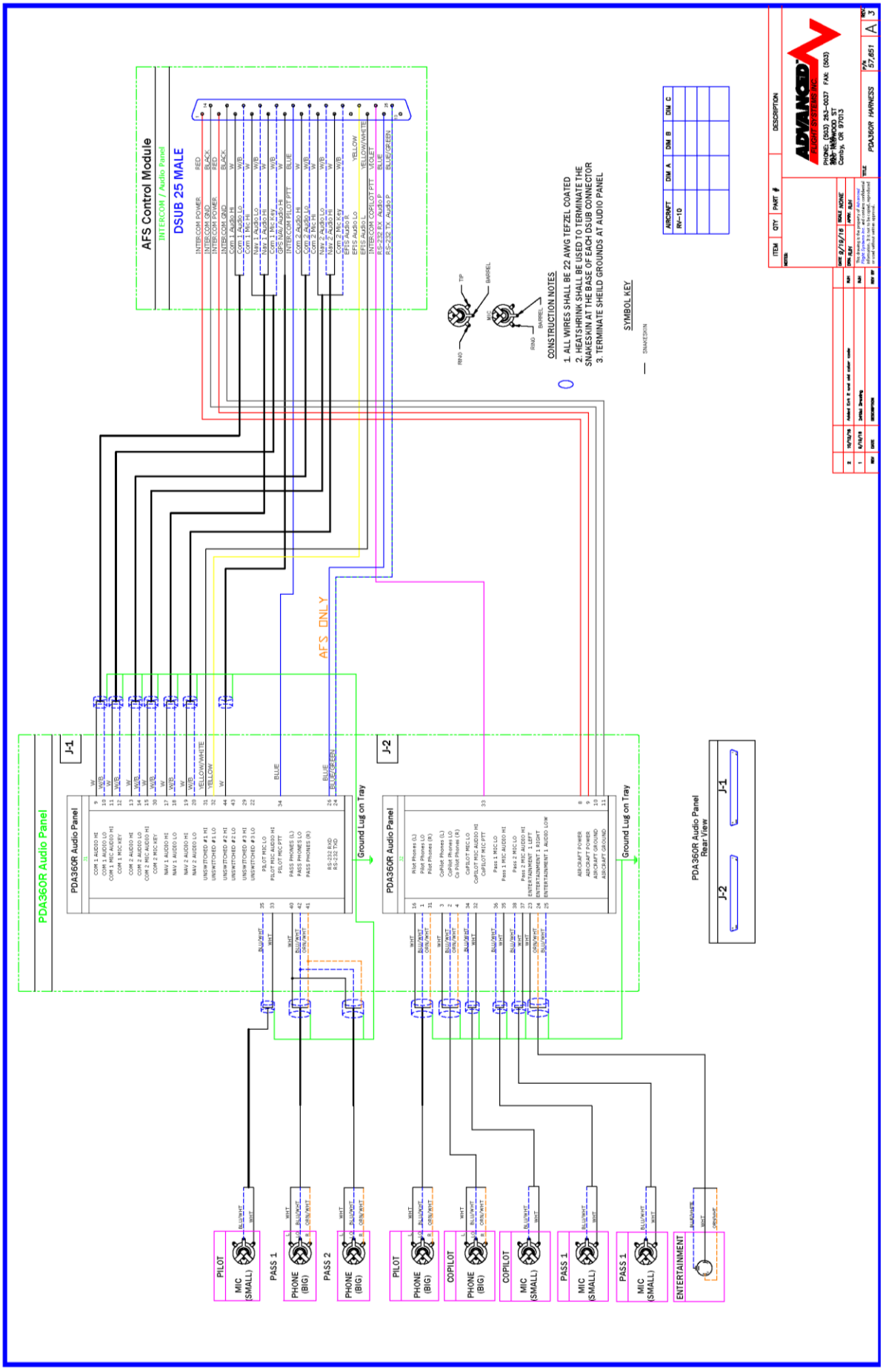
P/N: 57265 ACM Skyview Backup Battery Harness

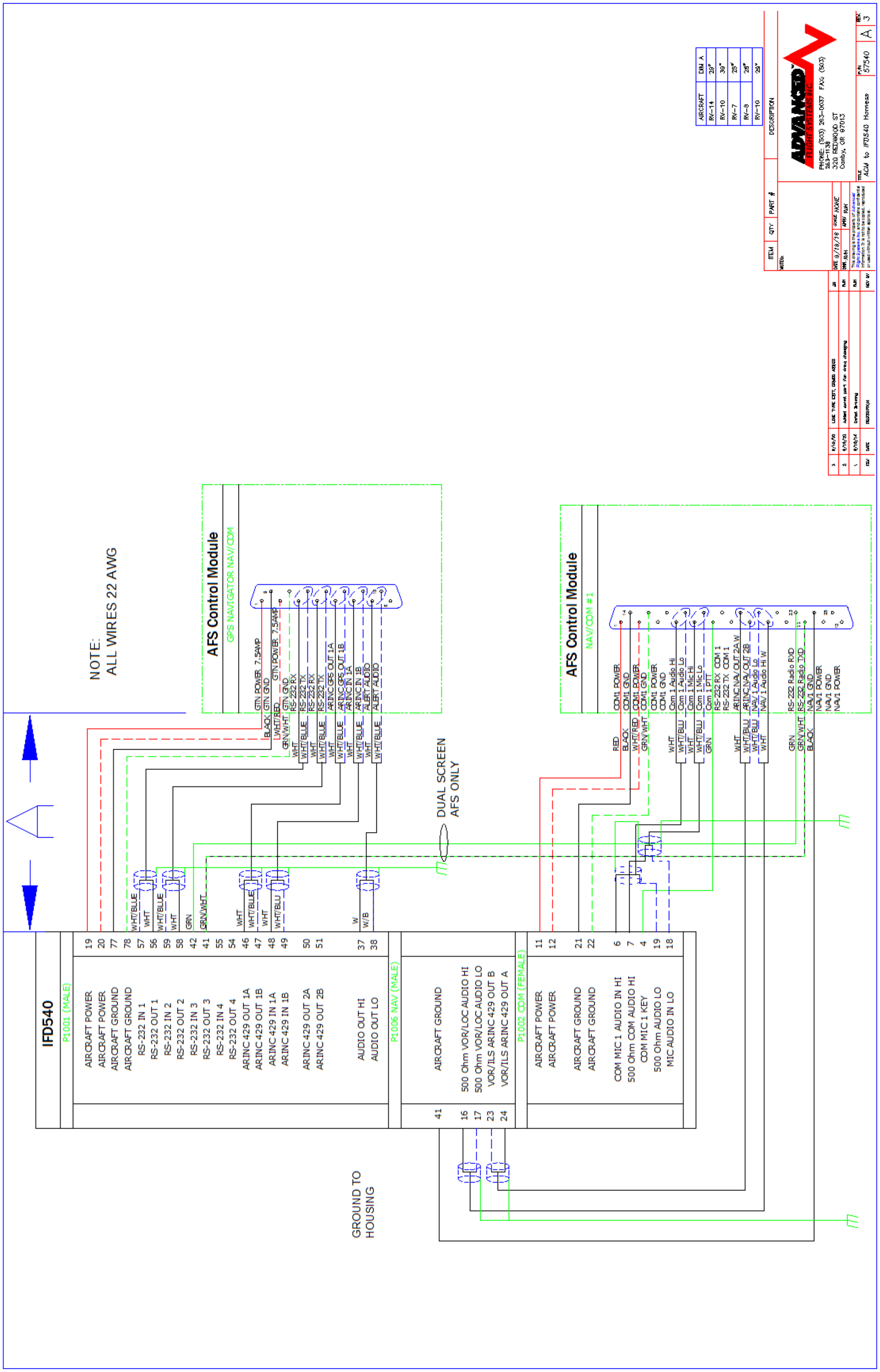



AFS Control Module
AP CONTROL PANEL DSUB-15
CONNECTOR - 50.115M
BACKSHELL - 50.115S
PINS - 50.100M
NOTE #2
TRIM POWER
TRIM GND
PILOT ROLL RIGHT
PILOT PITCH UP
PILOT ROLL LEFT
PILOT PITCH DOWN
COPILOT ROLL RIGHT
COPILOT PITCH UP
COPILOT ROLL LEFT
COPILOT PITCH DOWN
MOTOR OUTPUT 2A
MOTOR OUTPUT 1A
MOTOR OUTPUT 2B
MOTOR OUTPUT 1B
AP CONTROL MODULE
AP CONTROL MODULE MAIN HARNESS DSUB-15
CONNECTOR - 50.115M
BACKSHELL - 50.115S
PINS - 50.100M
(RED) TRIM POWER
(BLACK) TRIM GND
(VIOLET BROWN) PILOT ROLL RIGHT
(BROWN ORANGE) PILOT PITCH UP
(VIOLET GREY) PILOT ROLL LEFT
(VIOLET) PILOT PITCH DOWN
(YELLOW WHITE) COPILOT ROLL RIGHT
(YELLOW) COPILOT PITCH UP
(GREEN WHITE) COPILOT ROLL LEFT
(GREEN) COPILOT PITCH DOWN
(BLUE GREEN) MOTOR OUTPUT 2A
(BLUE) MOTOR OUTPUT 1A
(ORANGE GREY) MOTOR OUTPUT 2B
(ORANGE) MOTOR OUTPUT 1B
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ITEM
QTY
PART #
DESCRIPTION
ADVANCED FLIGHT SYSTEMS INC.
PHONE (503) 263-0037 FAX (503) 263-0038
320 REDWOOD ST
CANBY, OR 97013
DATE 6/19/14
SCALE NONE
TITLE AP MODULE HARNESS
P/N 57450S
REV A
1
6/19/14
Initial Drawing
REV
DATE
DESCRIPTION


CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
AFS Control Module
TRANSPONDER-GPS-ADSB DSUB-15
CONNECTOR - 50.115M
BACKSHELL - 50.115S
PINS - 50.100M
NOTE #2
XPNDR POWER RED
XPNDR GND BLACK
XPNDR GPS < ORANGE/BLUE
XPNDR TX > BLUE/ORANGE
XPNDR RX < WHITE/BLUE
GPS POWER ORANGE
GPS GND BLACK
GPS TX > VIOLET/GRAY
GPS RX < ORANGE/GRAY
ADS-B POWER RED
ADS-B GND BLACK
ADS-B TX > YELLOW
ADS-B RX < YELLOW/WHITE
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
FOUR WIRE TWIST
LENGTHS
XPNDR ADS-B GPS
RV-7 28" 33" 36"
RV-8 17" 18" 30"
RV-10 AEROSPORT 36" 38" 36"
RV-10 30" 38" 36"
SPORTSMAN 32" 26" 30"
ADVANCED FLIGHT SYSTEMS INC.
320 REDWOOD ST
CANBY, OR 97013
XPNDR/GPS/ADSB
57500 A 6
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
GPS POWER
GPS GROUND
GPS TX
GPS RX
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
OPTIONAL 72" WIRE LEAD FOR IDENT ON STICK GRIP
Transponder
MAIN HARNESS DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
LOOP
GND BLACK
Power RED
GPS In ORANGE/BLUE
RS-232 RX WHITE/BLUE
RS-232 TX BLUE/ORANGE
IDENT SWITCH WHT
SV-GPS-250
GPS POWER ORG
GPS RX GRY/ORG
GPS TX GRY/VLT
GPS GROUND BLK
ADS-B
MAIN HARNESS DSUB-9
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
Power RED
RS-232 RX YELLOW/WHITE
RS-232 TX YELLOW
GND BLACK


GPS
COM
P1002
P1002 (26 PIN)
P1003 (44 PIN)
P1004
P1003
P1004 (62 PIN)
P1001 (78 PIN)
P1001
NAV
FAN
Figure A-12. GTN 6XX Connector Layout Detail—Rear View
4.1.1 P1001 Connector
VIEW LOOKING AT REAR OF UNIT. PIN 1 IS TOP RIGHT.
4.1.3 P1003 GTN COM Connector (GTN 635/650/750 Only)
VIEW LOOKING AT REAR OF UNIT. PIN 1 IS TOP RIGHT.
4.1.4 P1004 GTN NAV Connector (GTN 650/750 Only)
VIEW LOOKING AT REAR OF UNIT. PIN 1 IS ON BOTTOM LEFT.
GTN-650
P1001
AIRCRAFT POWER
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 IN 2
RS-232 OUT 2
RS-232 IN 3
RS-232 OUT 3
RS-232 IN 4
RS-232 OUT 4
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
AUDIO OUT HI
AUDIO OUT LO
P1004 NAV
500 Ohm VOR/LOC AUDIO HI
500 Ohm VOR/LOC AUDIO LO
VOR/ILS ARINC 429 OUT B
VOR/ILS ARINC 429 OUT A
P1003 COM
500 Ohm COM AUDIO HI
COM MIC 1 KEY
500 Ohm AUDIO LO
MIC AUDIO IN LO
FAN CONN.
3 PIN MOLEX
POWER
FAN/TAC
GND
CONFIG. MODULE
VCC
GND
CLOCK
DATA
AFS Control Module
GPS NAVIGATOR NAV/COM
GTN POWER 7.5AMP
GTN GND
RS-232 RX
RS-232 TX
ARINC GPS OUT 1A
ARINC GPS OUT 1B
ARINC IN 1A
ARINC IN 1B
DUAL SCREEN
AFS ONLY
AFS Control Module
NAV/COM #1
COM1 POWER
COM1 GND
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
RS-232 RX COM 1
RS-232 TX COM 1
ARINC NAV OUT 2A
ARINC NAV OUT 2B
NAV 1 Audio Lo
NAV 1 Audio Hi
RS-232 Radio RXD
RS-232 Radio TXD
NAV1 GND
NAV1 POWER
POWER 10 AMP
WHT
WHT/BLU
GRN
GRN/WHT
ADVANCED FLIGHT SYSTEMS INC
TITLE
GTN650 to ACM
P/N
57535
REV
B


AFS Control Module
INTERCOM / Audio Panel
DSUB 25 MALE
PDA360R Audio Panel
PDA360R Audio Panel
Rear View
J-1
J-2
AFS ONLY
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
3. TERMINATE SHIELD GROUNDS AT AUDIO PANEL
SYMBOL KEY
SNAKESKIN
Ground Lug on Tray
PILOT MIC (SMALL)
PASS 1 PHONE (BIG)
PASS 2 PHONE (BIG)
PILOT PHONE (BIG)
COPILOT PHONE (BIG)
COPILOT MIC (SMALL)
PASS 1 MIC (SMALL)
PASS 1 MIC (SMALL)
ENTERTAINMENT
ADVANCED FLIGHT SYSTEMS INC.
PDA360R HARNESS
P/N 57,651

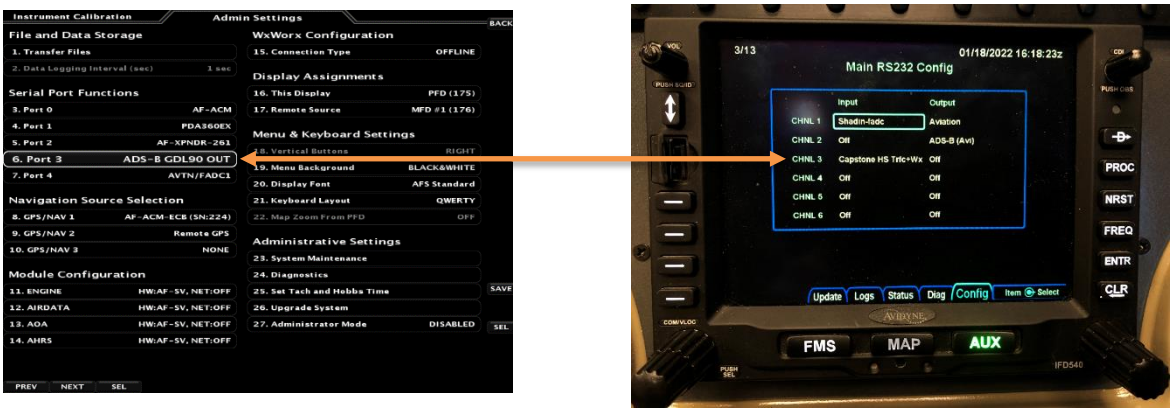

NOTE:
ALL WIRES 22 AWG
AFS Control Module
GPS NAVIGATOR NAV/COM
AFS Control Module
NAV/COM #1
DUAL SCREEN
AFS ONLY
IFD540
P1001 (MALE)
AIRCRAFT POWER
AIRCRAFT POWER
AIRCRAFT GROUND
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 OUT 2
RS-232 IN 2
RS-232 OUT 3
RS-232 IN 3
RS-232 IN 4
RS-232 OUT 4
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
ARINC 429 OUT 2A
ARINC 429 OUT 2B
AUDIO OUT HI
AUDIO OUT LO
P1006 NAV (MALE)
AIRCRAFT GROUND
500 Ohm VOR/LOC AUDIO HI
500 Ohm VOR/LOC AUDIO LO
VOR/ILS ARINC 429 OUT B
VOR/ILS ARINC 429 OUT A
P1002 COM (FEMALE)
AIRCRAFT POWER
AIRCRAFT POWER
AIRCRAFT GROUND
AIRCRAFT GROUND
COM MIC 1 AUDIO IN HI
500 Ohm COM AUDIO HI
COM MIC 1 KEY
500 Ohm AUDIO LO
MIC AUDIO IN LO
GROUND TO
HOUSING
ACM to IFD540 Harness
57540

Trouble Shooting ADS-b Data on an Avidyne IFD

If you are using two AF-5000 or AF-6600 EFIS screens we ship the P/N:57540 ACM to Avidyne IFD harness populated to get ADS-b data or to tune the IFD radio from the PFD EFIS serial port #3 connected to IFD serial port #3

PFD EFIS Serial Port #3 ⇔ IFD Serial Port #3

Configuration to use the PFD serial port #3 to send ADS-b data (Traffic and Weather) to the IFD



If your MFD EFIS is connected to and configured properly to get ADS-b data from the Dynon SV-ADSB-472 receiver the IFD screen should look like this with **no warning message**.

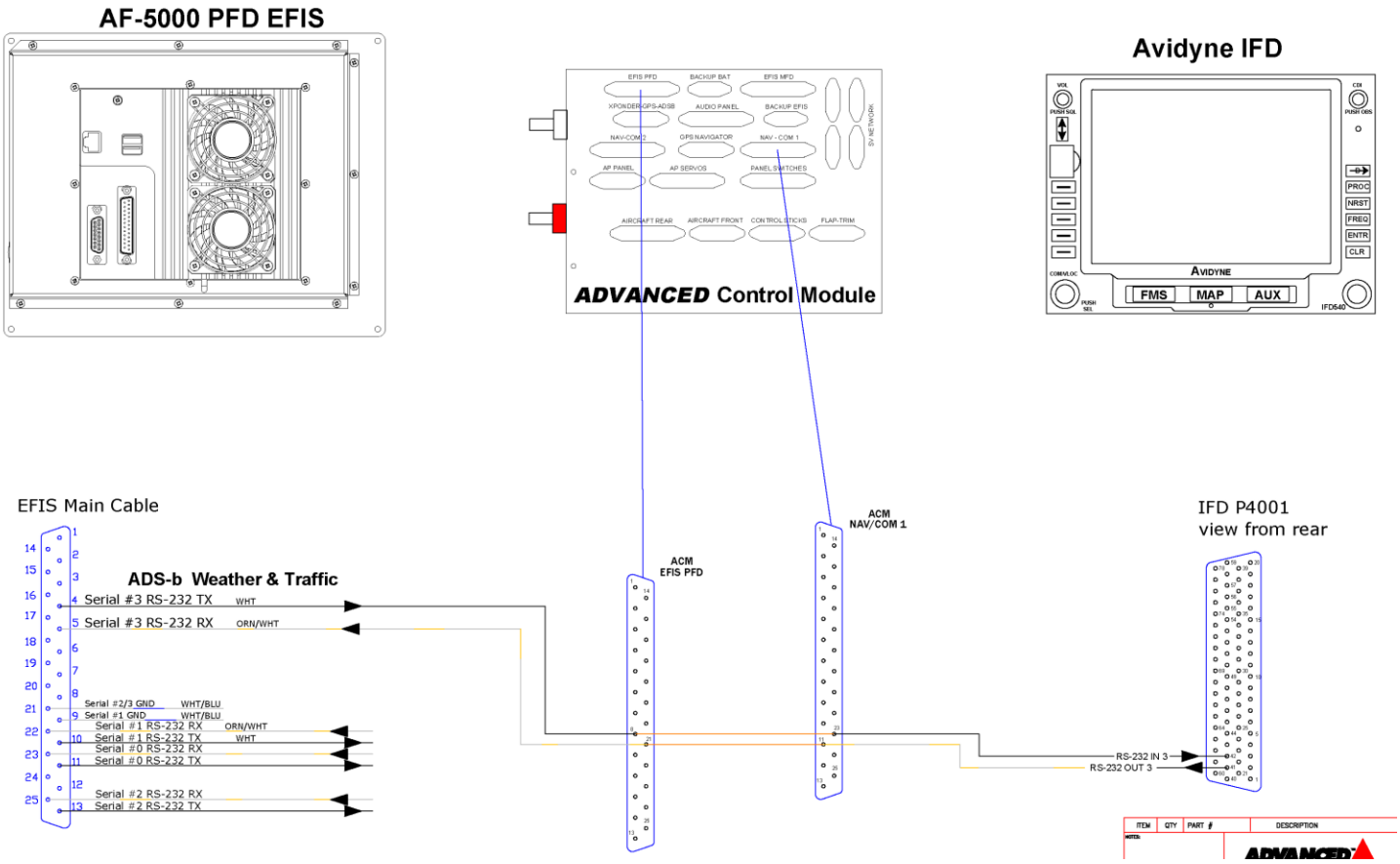
If the IFD is not getting ADS-b data your IFD screen will have a yellow ADS-B Traffic Sensor Fault message.

You can test the warning message by going into the calibration menu on the CoPilot EFIS (SET > CAL). When the MFD EFIS is in the calibration menu it stops sending ADS-b data to the PFD EFIS and it should generate the fault on the IFD. When you exit the CAL Menu on the CoPilot EFIS the message should go away on the IFD.

If the ADS-B Traffic Sensor Fault message does not go away you should check the following:

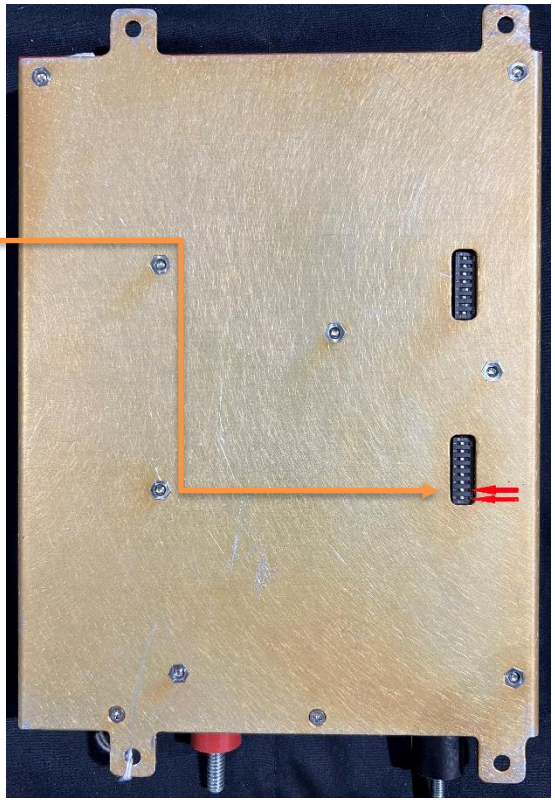
1. Serial port 3 settings on the PFD EFIS and IFD are configured correctly? Make sure the IFD is set to **HS** TRFC+WX

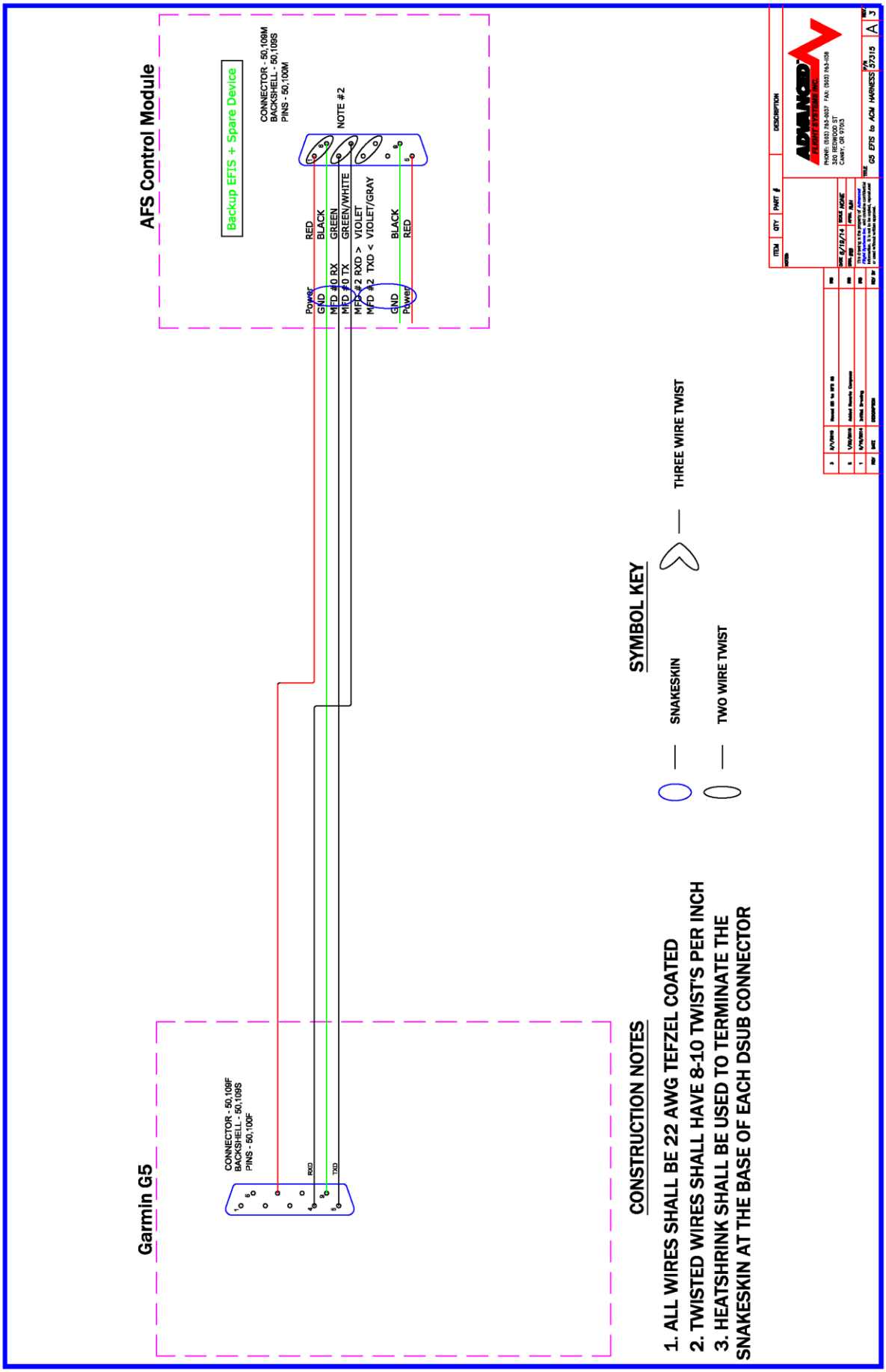
2. The ACM to IFD harness has serial port 3 populated. Pull the IFD out of the tray and disconnect the PFD Main Harness from the EFIS. Using a voltmeter measure the resistance between the IFD P4001 Pin 42 to the PFD harness connector Pin 4.

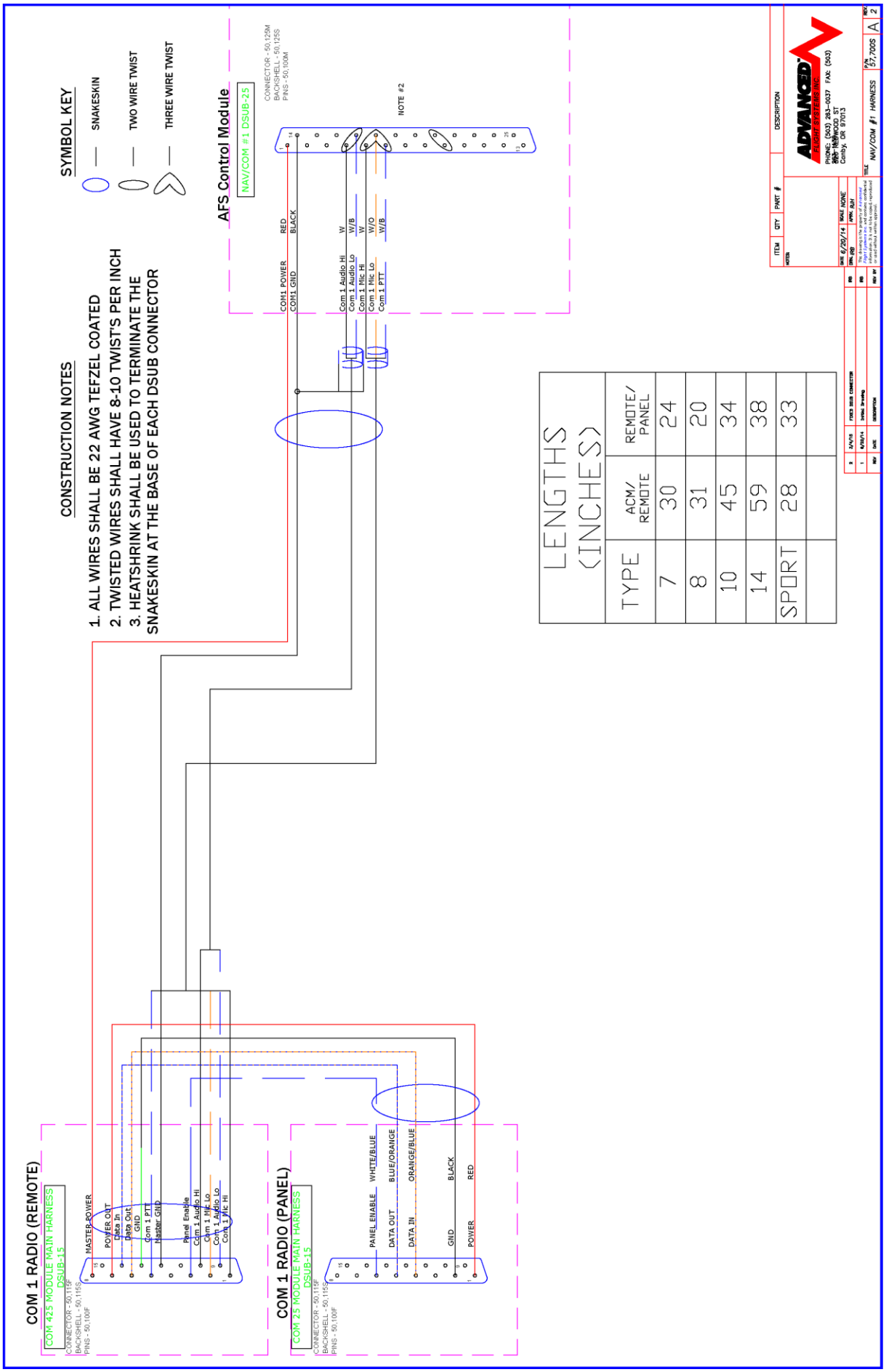


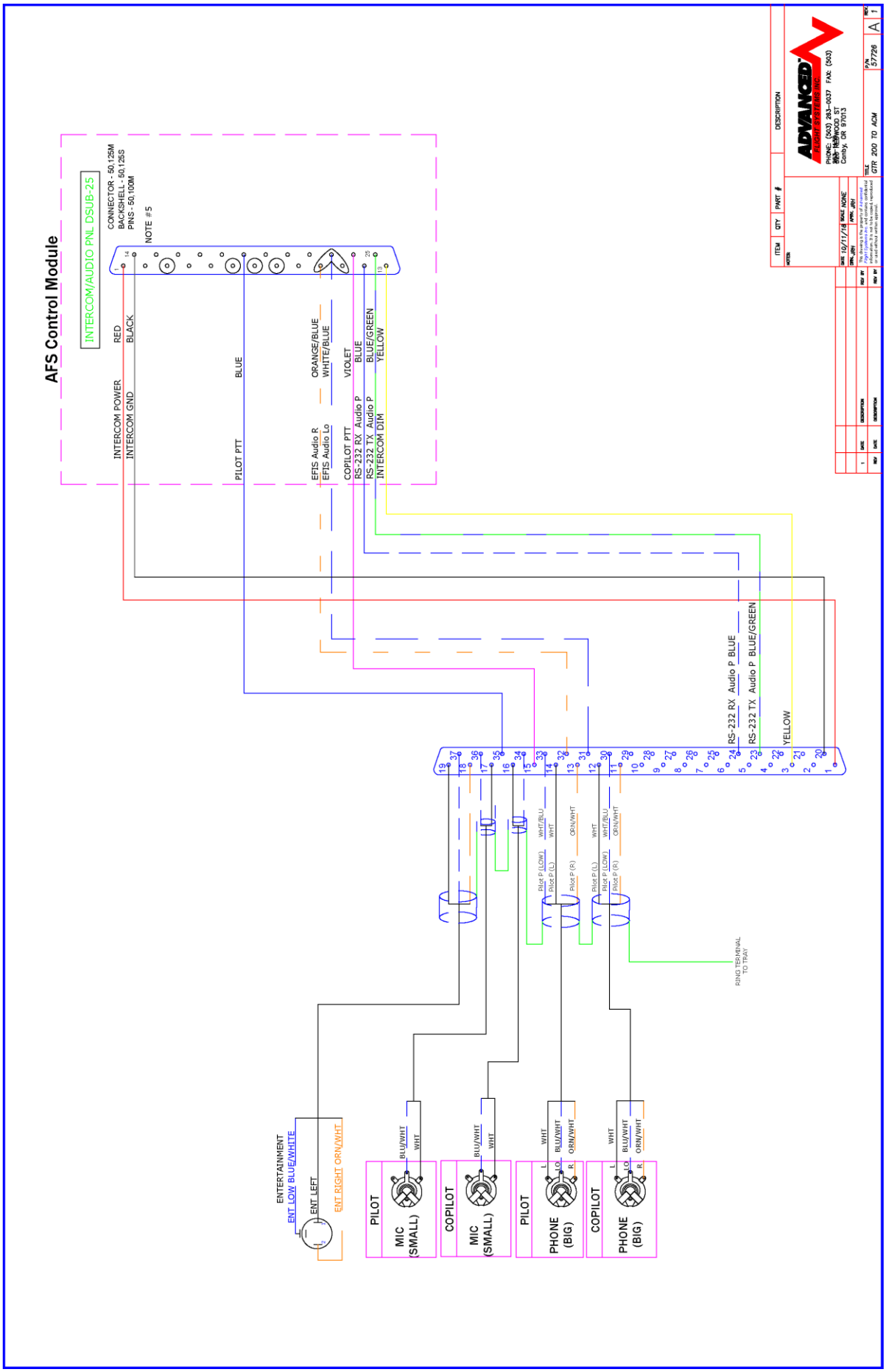
3. Verify the ACM configuration switch settings.
   a. Using a voltmeter verify that the PFD harness Pin 4 is not connected to the MFD harness Pin 4. If there is a connection you will need to set the switches on the back of the ACM module.

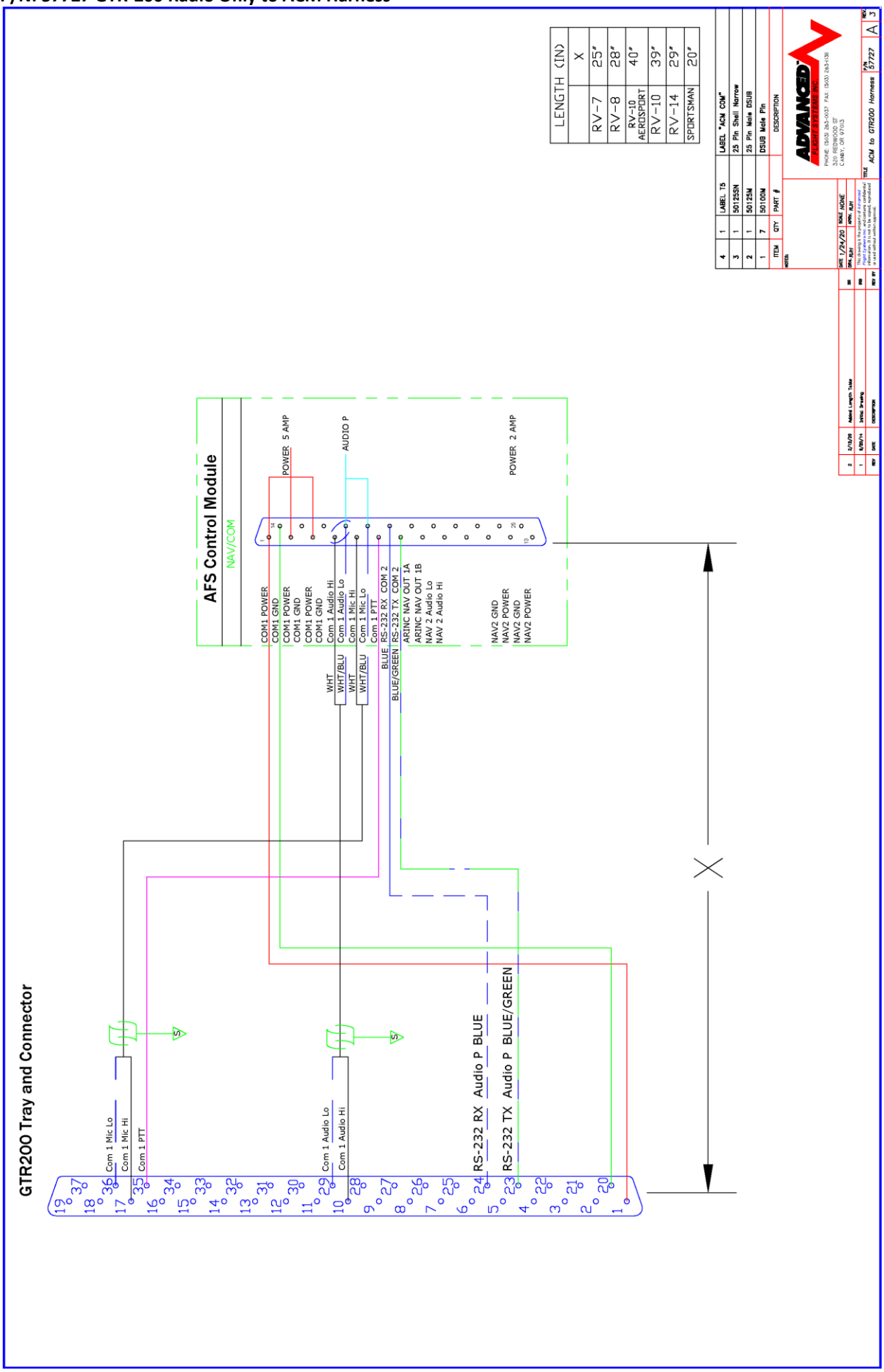
   b. All the lower switch block SW2 switches should be toward the center of the ACM like this picture.

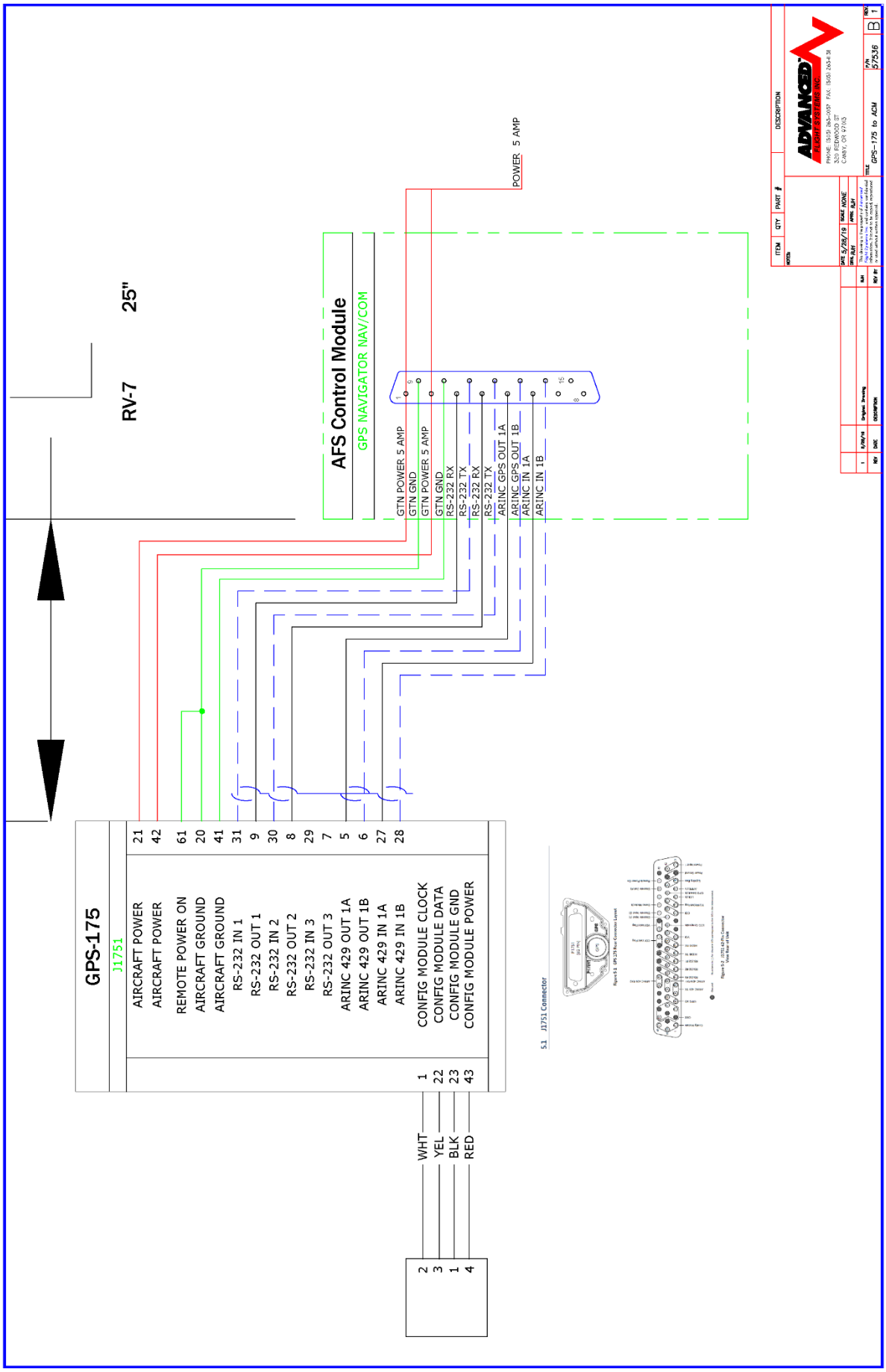


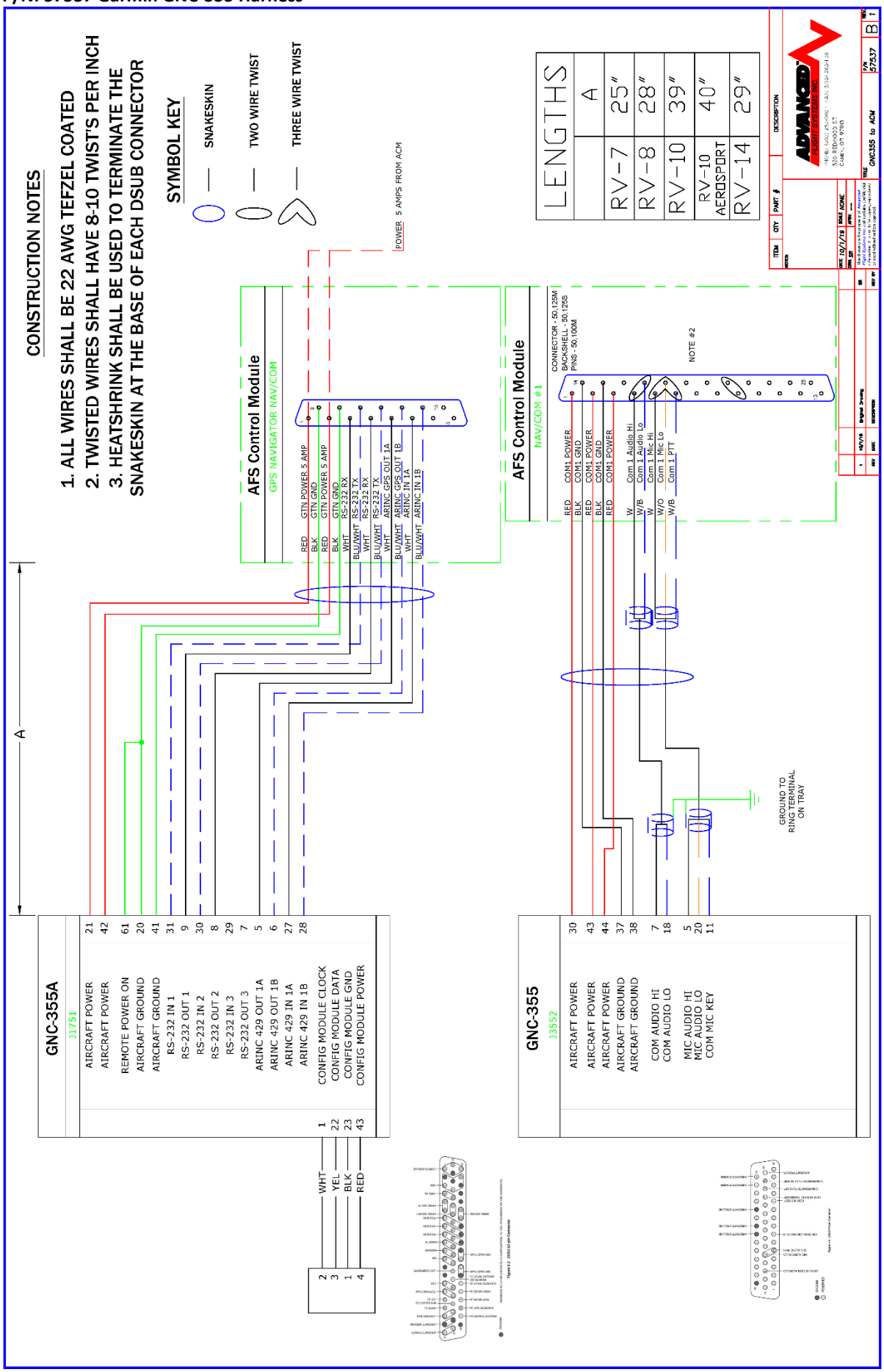

AFS Control Module
Backup EFIS + Spare Device
CONNECTOR - 50,109M
BACKSHELL - 50,109S
PINS - 50,100M
NOTE #2
RED
BLACK
GREEN
GREEN/WHITE
VIOLET
VIOLET/GRAY
BLACK
RED
Power
GND
MFD #0 RX
MFD #0 TX
MFD #2 RXD >
MFD #2 TXD <
GND
Power
Garmin G5
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
RXD
TXD
SYMBOL KEY
SNAKESKIN
THREE WIRE TWIST
TWO WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ITEM
QTY
PART #
DESCRIPTION
ADVANCED
FLIGHT SYSTEMS INC.
PHONE: (503) 783-3037 FAX: (503) 783-3039
380 REDWOOD ST
CANBY, OR 97013
G5 EFIS to ACM HARNESS
57315
A
3

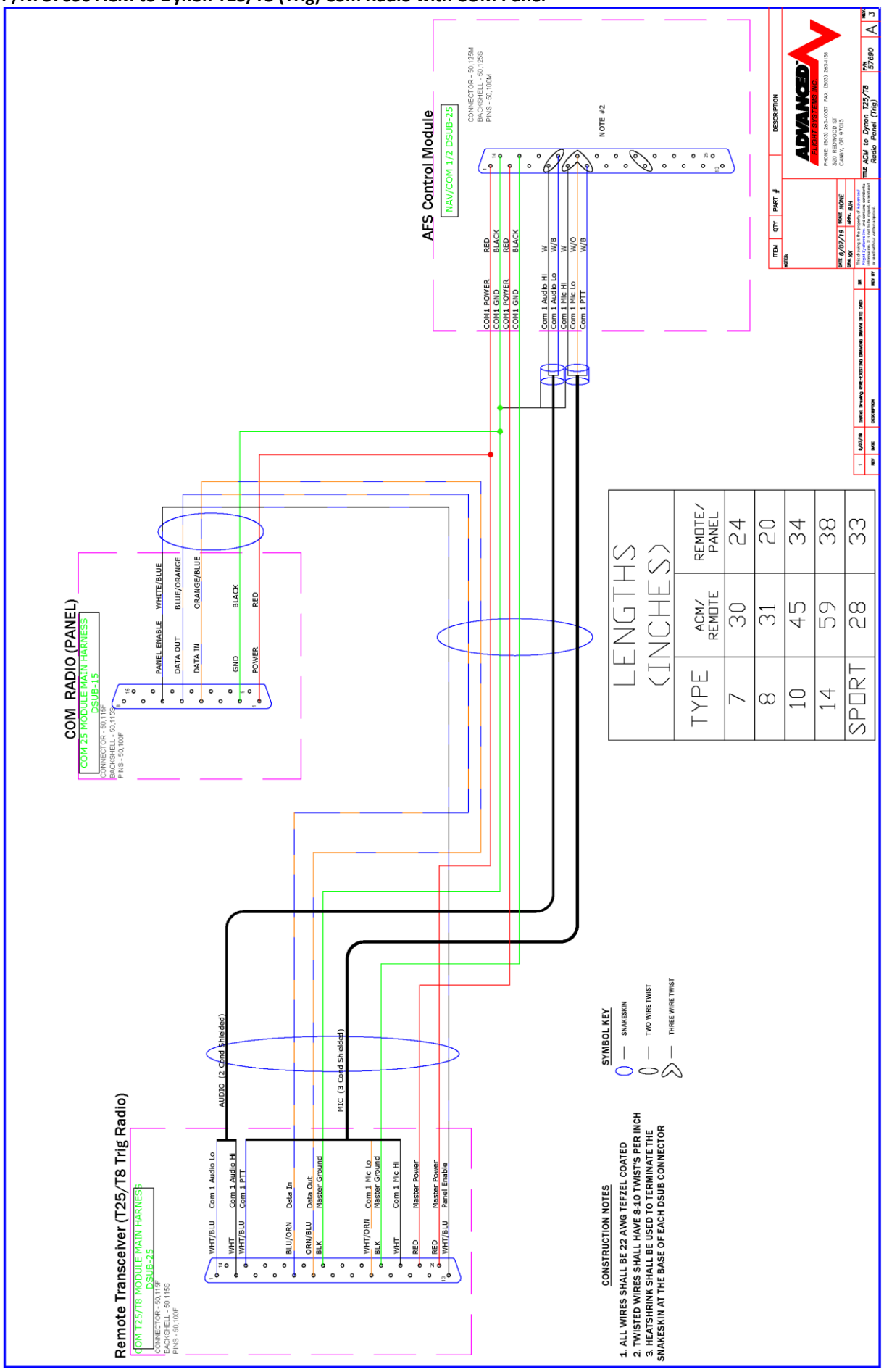

SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
AFS Control Module
NAV/COM #1 DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
COM1 POWER
COM1 GND
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
RED
BLACK
W
W/B
W
W/O
W/B
NOTE #2
COM 1 RADIO (REMOTE)
COM 425 MODULE MAIN HARNESS
DSUB-15
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
MASTER POWER
POWER OUT
Data In
Data Out
GND
Com 1 PTT
Master GND
Panel Enable
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
COM 1 RADIO (PANEL)
COM 25 MODULE MAIN HARNESS
DSUB-15
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
PANEL ENABLE
DATA OUT
DATA IN
GND
POWER
WHITE/BLUE
BLUE/ORANGE
ORANGE/BLUE
BLACK
RED
LENGTHS (INCHES)
TYPE
ACM/ REMOTE
REMOTE/ PANEL
7 30 24
8 31 20
10 45 34
14 59 38
SPORT 28 33
ADVANCED
NAV/COM #1 HARNESS
P/N 57.7005
REV A 2

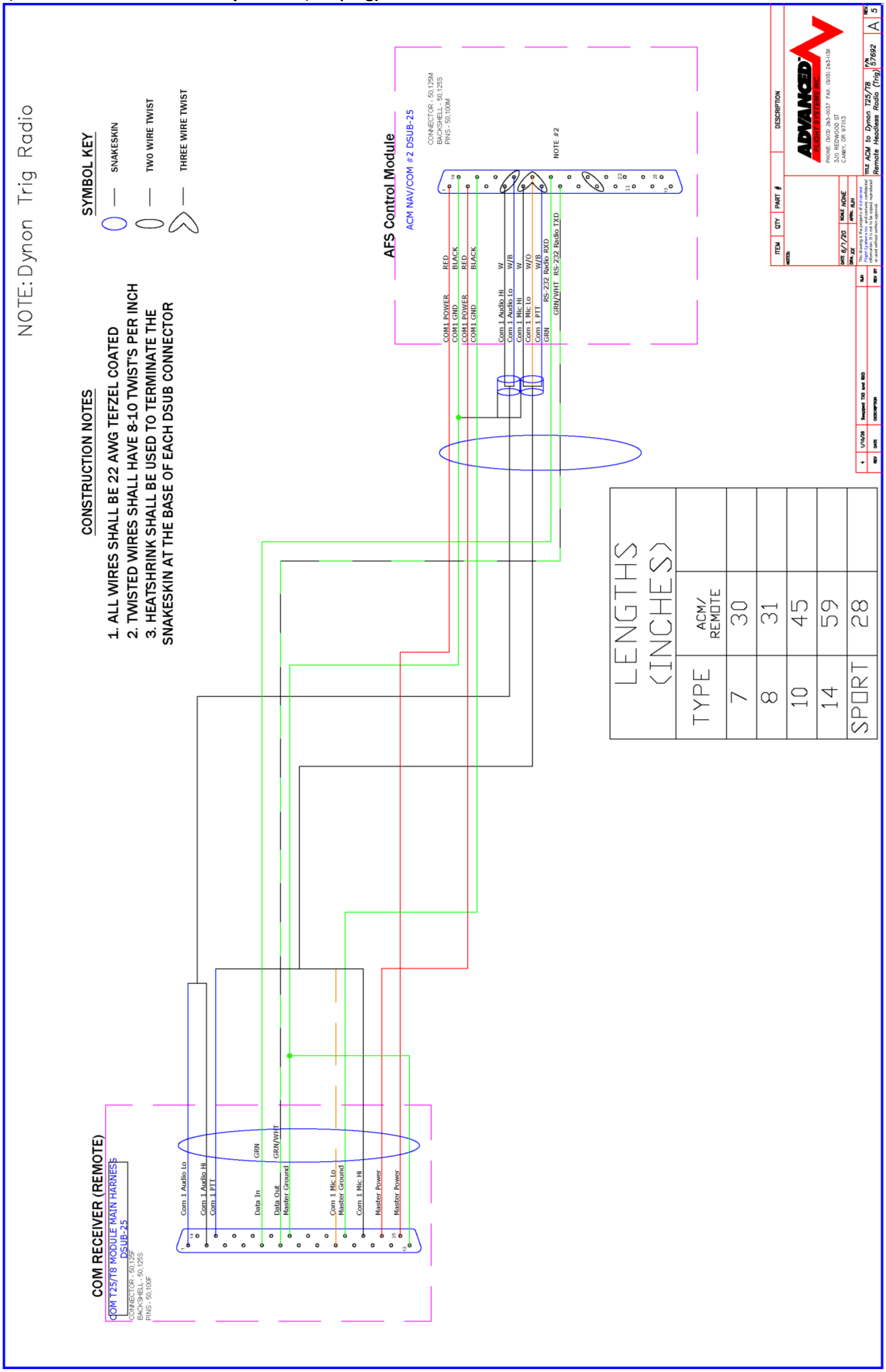

AFS Control Module
INTERCOM/AUDIO PNL DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
NOTE #5
INTERCOM POWER
INTERCOM GND
PILOT PTT
EFIS Audio R
EFIS Audio Lo
COPILOT PTT
RS-232 RX Audio P
RS-232 TX Audio P
INTERCOM D/M
RED
BLACK
BLUE
ORANGE/BLUE
WHITE/BLUE
VIOLET
BLUE
BLUE/GREEN
YELLOW
RS-232 RX Audio P BLUE
RS-232 TX Audio P BLUE/GREEN
YELLOW
RING TERMINAL TO TRAY
ENTERTAINMENT
ENT LOW BLUE/WHITE
ENT LEFT
ENT RIGHT ORN/WHT
PILOT MIC (SMALL)
COPILOT MIC (SMALL)
PILOT PHONE (BIG)
COPILOT PHONE (BIG)
BLU/WHT
WHT
ORN/WHT
Pilot P (LOW)
Pilot P (L)
Pilot P (R)
ADVANCED FLIGHT SYSTEMS INC.
PHONE: (303) 283-0037 FAX: (303)
GTR 200 TO ACM
P/N 57726

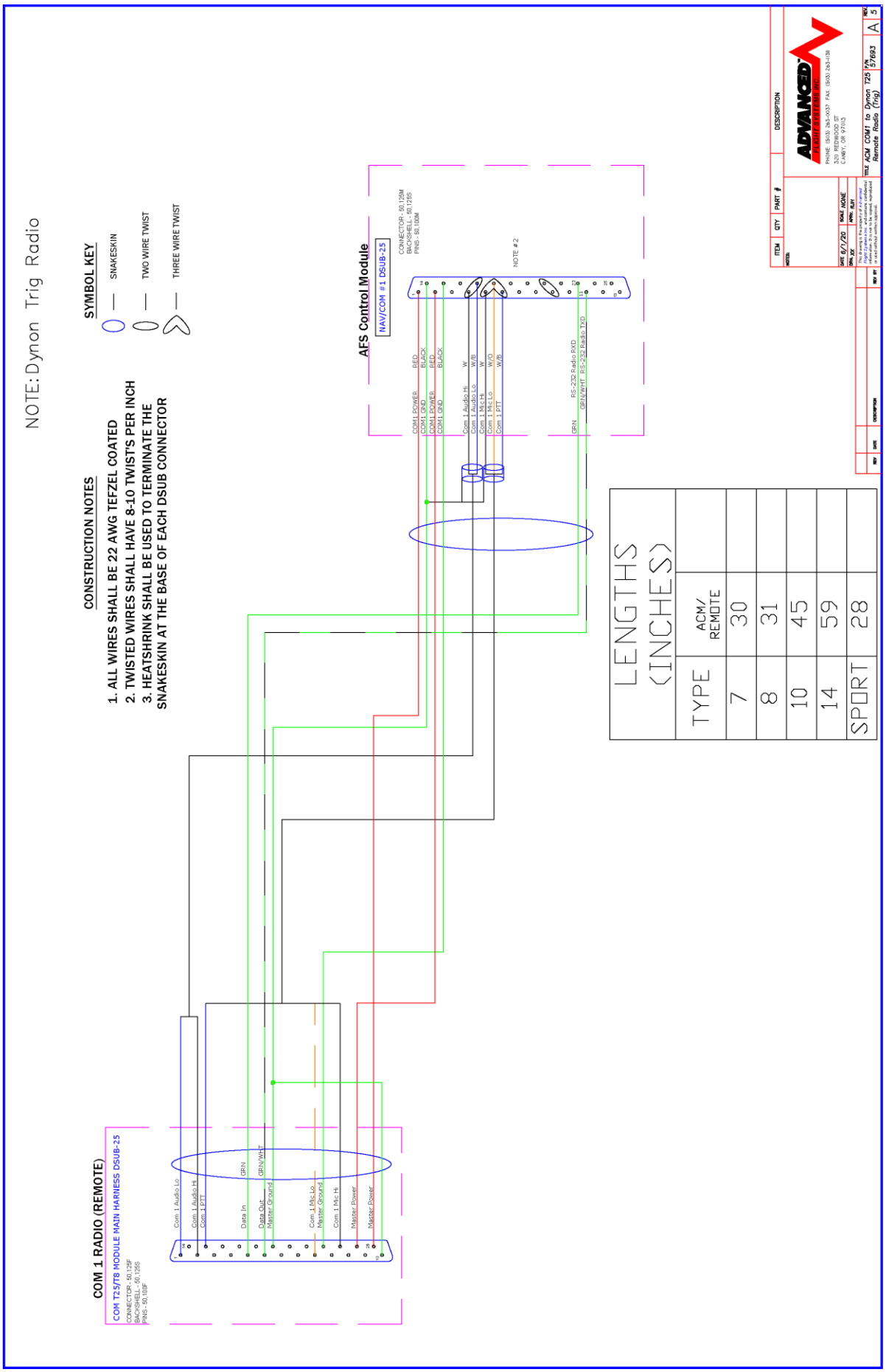

GTR200 Tray and Connector
AFS Control Module
NAV/COM
POWER 5 AMP
AUDIO P
POWER 2 AMP
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
RS-232 RX COM 2
RS-232 TX COM 2
ARINC NAV OUT 1A
ARINC NAV OUT 1B
NAV 2 Audio Lo
NAV 2 Audio Hi
NAV2 GND
NAV2 POWER
NAV2 GND
NAV2 POWER
WHT
WHT/BLU
WHT
WHT/BLU
BLUE
BLUE/GREEN
Com 1 Mic Lo
Com 1 Mic Hi
Com 1 PTT
Com 1 Audio Lo
Com 1 Audio Hi
RS-232 RX Audio P BLUE
RS-232 TX Audio P BLUE/GREEN
LENGTH (IN)
X
RV-7 25"
RV-8 28"
RV-10 AEROSPORT 40"
RV-10 39"
RV-14 29"
SPORTSMAN 20"
4 1 LABEL "ACM COM"
3 1 50125SN 25 Pin Shell Narrow
2 1 50125M 25 Pin Male DSUB
1 7 50100M DSUB Male Pin
ITEM QTY PART # DESCRIPTION
ADVANCED FLIGHT SYSTEMS INC.
ACM to GTR200 Harness
57727
A
3

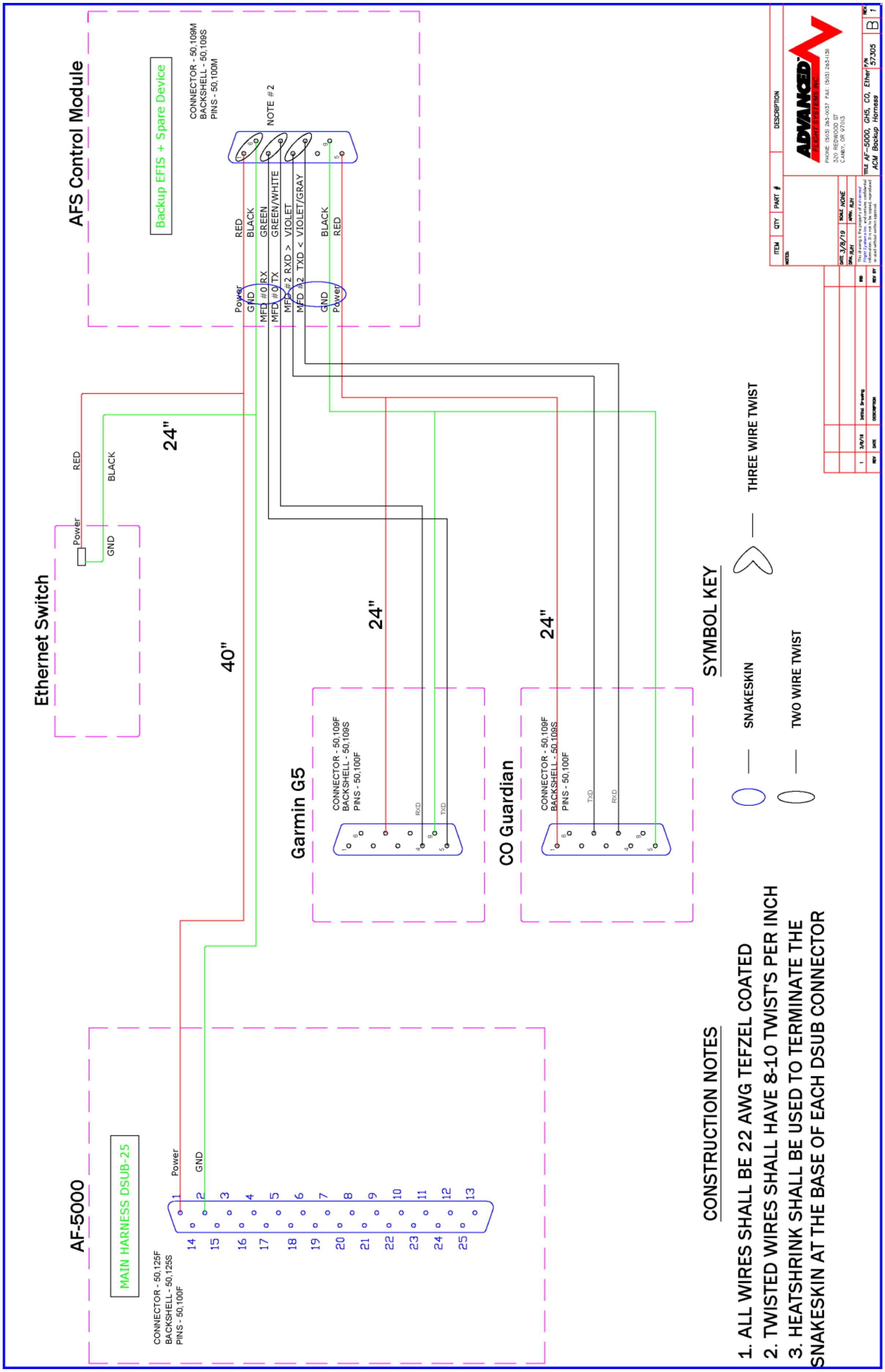

RV-7
25"
AFS Control Module
GPS NAVIGATOR NAV/COM
POWER 5 AMP
GTN POWER 5 AMP
GTN GND
GTN POWER 5 AMP
GTN GND
RS-232 RX
RS-232 TX
RS-232 RX
RS-232 TX
ARINC GPS OUT 1A
ARINC GPS OUT 1B
ARINC IN 1A
ARINC IN 1B
GPS-175
J1751
AIRCRAFT POWER
AIRCRAFT POWER
REMOTE POWER ON
AIRCRAFT GROUND
AIRCRAFT GROUND
RS-232 IN 1
RS-232 OUT 1
RS-232 IN 2
RS-232 OUT 2
RS-232 IN 3
RS-232 OUT 3
ARINC 429 OUT 1A
ARINC 429 OUT 1B
ARINC 429 IN 1A
ARINC 429 IN 1B
CONFIG MODULE CLOCK
CONFIG MODULE DATA
CONFIG MODULE GND
CONFIG MODULE POWER
WHT
YEL
BLK
RED
J1751 Connector
ADVANCED
GPS-175 to ACM
P/N 57536

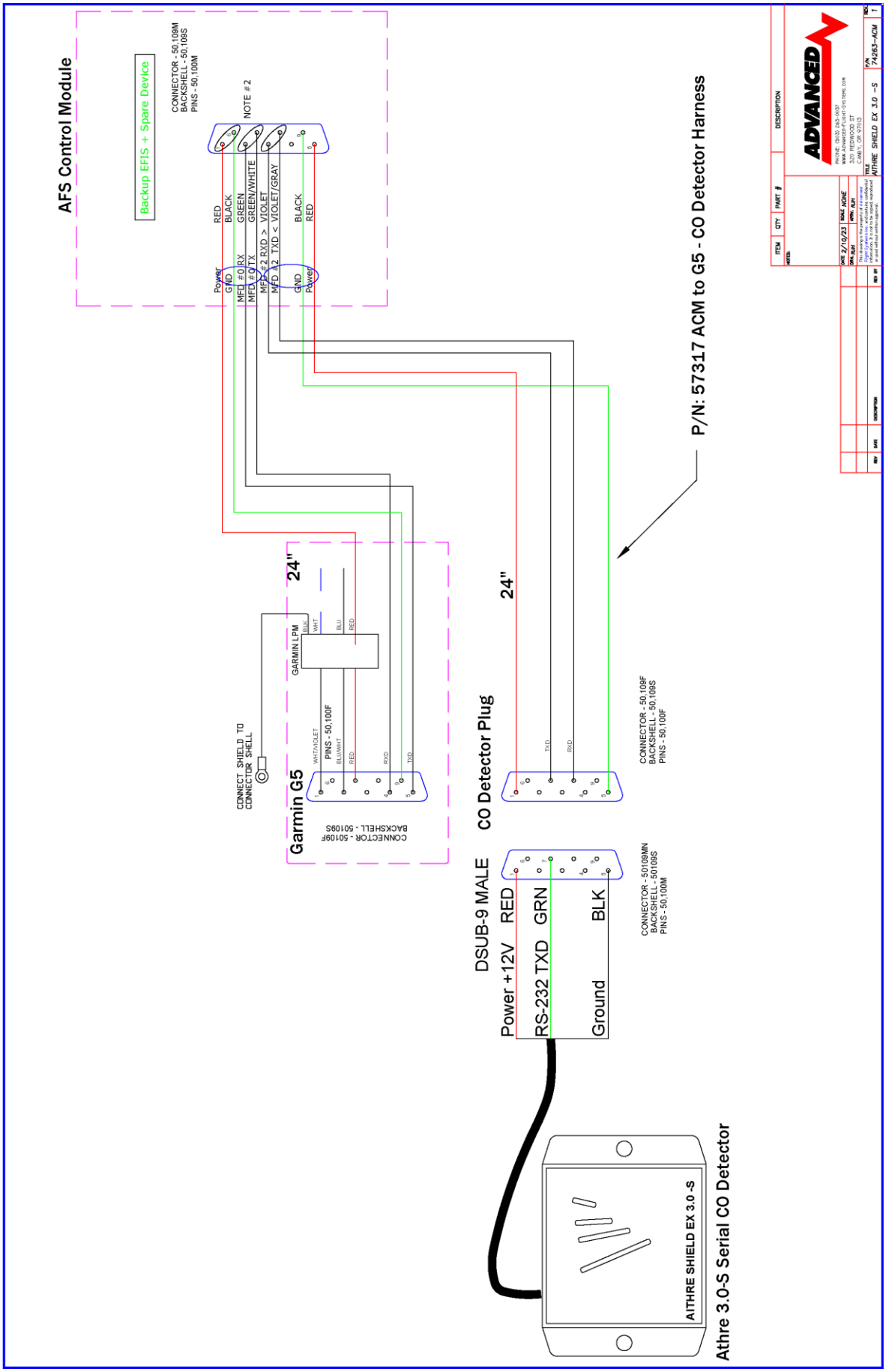

CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
LENGTHS
A
RV-7 25"
RV-8 28"
RV-10 39"
RV-10 AEROSPORT 40"
RV-14 29"
POWER 5 AMPS FROM ACM
AFS Control Module
GPS NAVIGATOR NAV/COM
AFS Control Module
NAV/COM #1
CONNECTOR - 50.125M
BACKSHELL - 90.125S
PINS - 50.100M
NOTE #2
GROUND TO RING TERMINAL ON TRAY
GNC-355A
J1751
GNC-355
J3552
GNC355 to ACM
P/N 57537


AFS Control Module
NAV/COM 1/2 DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.100M
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
RED
BLACK
RED
BLACK
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
W
W/B
W
W/O
W/B
NOTE #2
COM RADIO (PANEL)
COM 25 MODULE MAIN HARNESS
DSUB-15
CONNECTOR - 50.115F
BACKSHELL - 50.115S
PINS - 50.100F
PANEL ENABLE
DATA OUT
DATA IN
GND
POWER
WHITE/BLUE
BLUE/ORANGE
ORANGE/BLUE
BLACK
RED
Remote Transceiver (T25/T8 Trig Radio)
COM T25/T8 MODULE MAIN HARNESS
DSUB-25
CONNECTOR - 50.119F
BACKSHELL - 50.115S
PINS - 50.100F
AUDIO (2 Cond Shielded)
MIC (3 Cond Shielded)
WHT/BLU Com 1 Audio Lo
WHT Com 1 Audio Hi
WHT/BLU Com 1 PTT
BLU/ORN Data In
ORN/BLU Data Out
BLK Master Ground
WHT/ORN Com 1 Mic Lo
BLK Master Ground
WHT Com 1 Mic Hi
RED Master Power
RED Master Power
WHT/BLU Panel Enable
LENGTHS (INCHES)
TYPE | ACM/ REMOTE | REMOTE/ PANEL
7 | 30 | 24
8 | 31 | 20
10 | 45 | 34
14 | 59 | 38
SPORT | 28 | 33
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ADVANCED
ITEM | QTY | PART # | DESCRIPTION
DATE 6/07/19 | SCALE NONE
DRN: XX | APPR: RJH
TITLE ACM to Dynon T25/T8 Radio Panel (Trig)
P/N 57690 | REV A | 3

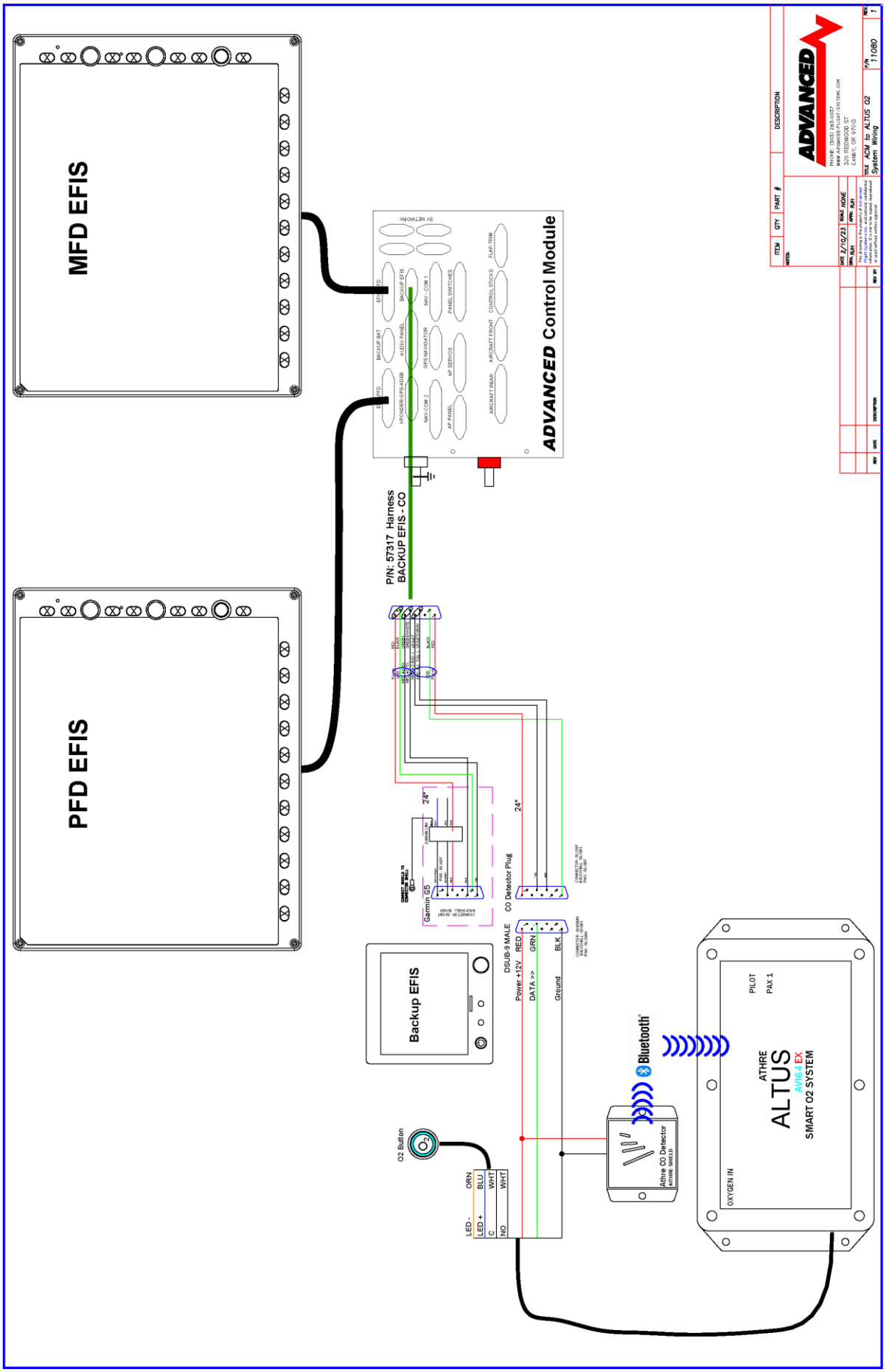

NOTE: Dynon Trig Radio
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
AFS Control Module
ACM NAV/COM #2 DSUB-25
NOTE #2
COM1 POWER RED
COM1 GND BLACK
COM1 POWER RED
COM1 GND BLACK
Com 1 Audio Hi W
Com 1 Audio Lo W/B
Com 1 Mic Hi W
Com 1 Mic Lo W/O
Com 1 PTT W/B
GRN RS-232 Radio RXD
GRN/WHT RS-232 Radio TXD
COM RECEIVER (REMOTE)
COM T25/T8 MODULE MAIN HARNESS DSUB-25
Com 1 Audio Lo
Com 1 Audio Hi
Com 1 PTT
Data In
Data Out
Master Ground
Com 1 Mic Lo
Master Ground
Com 1 Mic Hi
Master Power
Master Power
GRN
GRN/WHT
LENGTHS (INCHES)
TYPE | ACM/REMOTE
7 | 30
8 | 31
10 | 45
14 | 59
SPORT | 28
ADVANCED FLIGHT SYSTEMS INC.
TITLE ACM to Dynon T25/T8 Remote Headless Radio (Trig)
P/N 57692
REV A


NOTE: Dynon Trig Radio
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
AFS Control Module
NAV/COM #1 DSUB-25
CONNECTOR - 50.125M
BACKSHELL - 50.125S
PINS - 50.110M
NOTE #2
COM1 POWER
COM1 GND
COM1 POWER
COM1 GND
Com 1 Audio Hi
Com 1 Audio Lo
Com 1 Mic Hi
Com 1 Mic Lo
Com 1 PTT
RS-232 Radio RXD
RS-232 Radio TXD
RED
BLACK
RED
BLACK
W
W/B
W/V
W/O
W/B
GRN
GRN/WHT
COM 1 RADIO (REMOTE)
COM T25/T8 MODULE MAIN HARNESS DSUB-25
CONNECTOR - 50.125F
BACKSHELL - 50.125S
PINS - 50.109F
Com 1 Audio Lo
Com 1 Audio Hi
Com 1 PTT
Data In
Data Out
Master Ground
Com 1 Mic Lo
Master Ground
Com 1 Mic Hi
Master Power
Master Power
GRN
GRN/WHT
LENGTHS (INCHES)
TYPE
ACM/ REMOTE
7 30
8 31
10 45
14 59
SPORT 28
ITEM
QTY
PART #
DESCRIPTION
ADVANCED FLIGHT SYSTEMS INC.
PHONE (503) 263-0033 FAX (503) 263-0136
320 REDWOOD ST
CAREY, OR 97703
DATE 5/1/20
SCALE NONE
DWN. JGH
CHK. JGH
TITLE ACM COM1 to Dynon T25 Remote Radio (Trig)
DWG. NO. 57693
REV A
SHT 1 OF 1


AFS Control Module
Backup EFIS + Spare Device
CONNECTOR - 50,109M
BACKSHELL - 50,109S
PINS - 50,100M
NOTE #2
Power
GND
MFD #0 RX
MFD #0 TX
MFD #2 RXD > VIOLET
MFD #2 TXD < VIOLET/GRAY
GND
Power
RED
BLACK
GREEN
GREEN/WHITE
BLACK
RED
Ethernet Switch
Power
GND
RED
BLACK
24"
40"
24"
24"
Garmin G5
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
RXD
TXD
CO Guardian
CONNECTOR - 50,109F
BACKSHELL - 50,109S
PINS - 50,100F
TXD
RXD
AF-5000
MAIN HARNESS DSUB-25
CONNECTOR - 50,125F
BACKSHELL - 50,125S
PINS - 50,100F
Power
GND
SYMBOL KEY
SNAKESKIN
TWO WIRE TWIST
THREE WIRE TWIST
CONSTRUCTION NOTES
1. ALL WIRES SHALL BE 22 AWG TEFZEL COATED
2. TWISTED WIRES SHALL HAVE 8-10 TWIST'S PER INCH
3. HEATSHRINK SHALL BE USED TO TERMINATE THE SNAKESKIN AT THE BASE OF EACH DSUB CONNECTOR
ADVANCED FLIGHT SYSTEMS INC.
AF-5000, GH5, CO, Ether ACM Backup Harness
57305
B


AFS Control Module
Backup EFIS + Spare Device
CONNECTOR - 50.109M
BACKSHELL - 50.109S
PINS - 50.100M
NOTE #2
RED
BLACK
GREEN
GREEN/WHITE
VIOLET
VIOLET/GRAY
BLACK
RED
Power
GND
MFD #2 RXD >
MFD #2 TXD <
GND
Power
P/N: 57317 ACM to G5 - CO Detector Harness
24"
24"
GARMIN LPM
WHT
BLU
RED
CONNECT SHIELD TO CONNECTOR SHELL
Garmin G5
PINS - 50.100F
WHT/VIOLET
BLU/WHT
RED
RXD
TXD
CONNECTOR - 50109F
BACKSHELL - 50109S
CO Detector Plug
CONNECTOR - 50.109F
BACKSHELL - 50.109S
PINS - 50.100F
DSUB-9 MALE
Power +12V
RED
RS-232 TXD
GRN
Ground
BLK
CONNECTOR - 50109MN
BACKSHELL - 50109S
PINS - 50.100M
AITHRE SHIELD EX 3.0 -S
Athre 3.0-S Serial CO Detector
ADVANCED
TITLE
AITHRE SHIELD EX 3.0 -S
P/N
74263-ACM

P/N: 11080-ACM Aithre Altus Oxygen Wiring (RS-232 Serial)

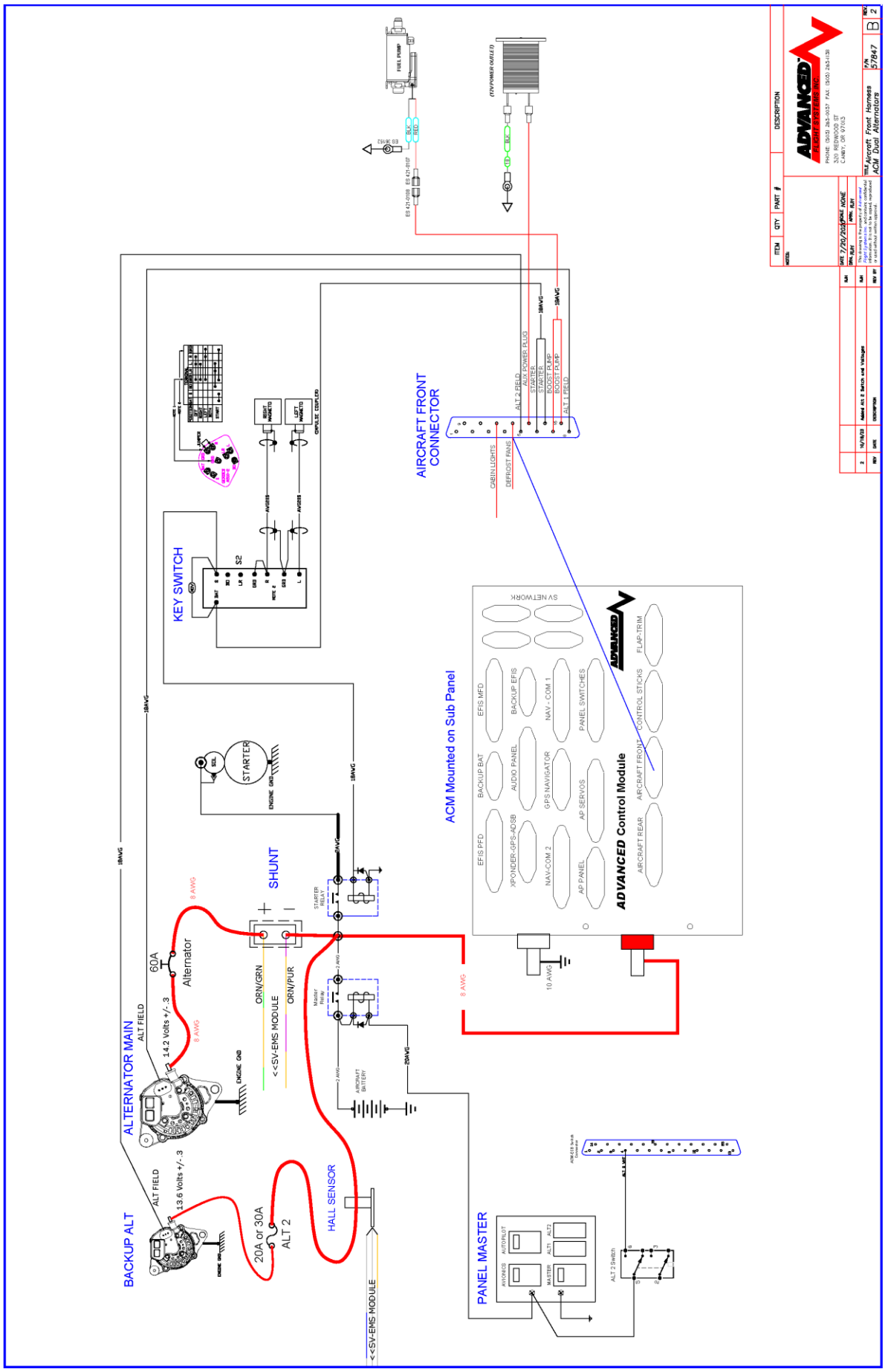


B & C Alternators

B & C sells two different linear regulators for a 12V system:

LR3C14 Main Alternator Regulator designed to turn on with the panel mounted ALT switch. Can be used as the backup alternator regulator with an ALT2 panel switch.

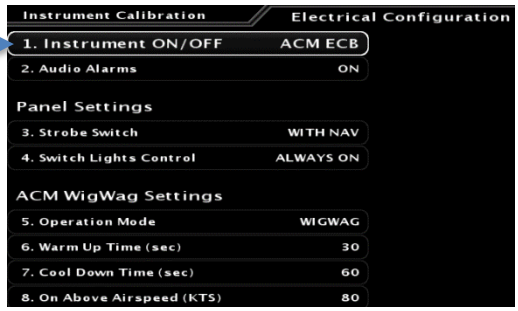
SB1B14 Backup Alternator Regulator designed to automatically turn on when the buss voltage drops below 13 volts. The S1B14 does not use a backup alternator switch on the panel. The SB1B14 has a warning line that can be connected to an EFIS input. The warning line will pull to ground when the backup alternator field is turned on and the backup alternator is being used. If the backup alternator is outputting more than 20amps the warning line will flash at 2hz.


ALTERNATOR MAIN
ALT FIELD
14.2 Volts +/- .3
60A
Alternator
8 AWG
ENGINE GND
BACKUP ALT
ALT FIELD
13.6 Volts +/- .3
20A or 30A
ALT 2
HALL SENSOR
<<SV-EMS MODULE
ORN/GRN
ORN/PUR
SHUNT
STARTER
STARTER RELAY
Master Relay
AIRCRAFT BATTERY
KEY SWITCH
S2
AVG#18
AIRCRAFT FRONT CONNECTOR
ALT 2 FIELD
STARTER
BOOST PUMP
ALT 1 FIELD
CABIN LIGHTS
DEFROST FANS
ACM Mounted on Sub Panel
ADVANCED Control Module
SV NETWORK
EFIS PFD
EFIS MFD
BACKUP BAT
BACKUP EFIS
AUDIO PANEL
NAV - COM 1
PANEL SWITCHES
FLAP-TRIM
XPONDER-GPS-ADSB
GPS NAVIGATOR
AP SERVOS
CONTROL STICKS
NAV-COM 2
AP PANEL
AIRCRAFT REAR
AIRCRAFT FRONT
10 AWG
PANEL MASTER
ALT 2 Switch
FUEL PUMP
IGNITION (HALO)
Aircraft Front Harness
ACM Dual Alternators
57847

Upgrading from an ACM-FUSE to ACM-ECB – AF-5000

If you are upgrading from an ACM-FUSE to ACM-ECB you will need to do the following:

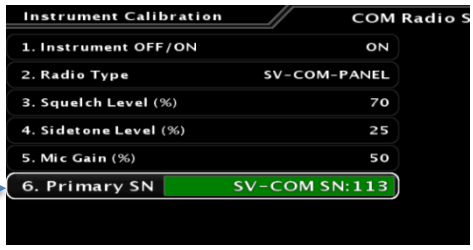
1. Remove all connectors from the ACM
2. Unbolt power and ground harnesses from ACM red and black posts.
3. Remove ACM module mounting screws and remove ACM from aircraft
4. Install the new ACM module in aircraft using the 4 mounting screws
5. Install power and ground harnesses to the red and black ACM posts - ***DO NOT OVERTORQUE THE POST NUTS, THEY ARE BRASS AND WILL BREAK IF OVERTORQED.***
6. Install ACM Harness connectors. Verify that you are connecting them to the correct location.
7. Turn ON the AUTOPILOT panel switch
8. Turn ON the MASTER switch
9. Turn ON the AVIONICS switch.
10. From the EFIS PFD go into the Calibration Advanced SV-NETWORK page SET > CAL > 2. Advanced SV-Network
11. Press SCAN
12. Press UPDATE is any item is RED
13. On the EFIS PFD and MFD change the Electrical setting from ACM to ACM-ECB



14. Reconfigure the Flap positions
15. Verify the Circuit Breaker sizes from the **CHECK > ELEC** menu.

Changing a SV-COM Radio

1. Remove all connectors from the SV-COM
2. Replace the SV-COM
3. Install ACM Harness connectors. Verify that you are connecting them to the correct location.
4. Turn ON the AUTOPILOT panel switch
5. Turn ON the MASTER switch
6. Turn ON the AVIONICS switch.
7. From the EFIS PFD go into the Calibration Advanced SV-NETWORK page SET > CAL > 2. Advanced SV-Network
8. Press SCAN
9. Press UPDATE is any item is RED
10. On the ***EFIS PFD and MFD*** select the new Primary SN for the new SV-COM



AF-5000 EFIS Messages

The **EFIS Status Message Bar** can display a number of Status or Warning messages from connected components.

EFIS Messages

ACM Messages

ALARM

ELEC COM

ELEC OFFLINE

GTR/GNC

COM NEEDS SERVICE

PUSH-TO-TALK KEY STUCK

COM TX POWER LIMITED

COM LOCKED TO 121.500 MHZ

GNC-255

VLOC NEEDS SERVICE

GLIDE SLOPE NEEDS SERVICE

NAV REMOTE TRANSFER STUCK

Autopilot

CWS ACTIVE / RELEASE WHEN READY

AP ENGAGE ARMED / RELEASE WHEN READY

AUTOPILOT / MIN SPEED

AUTOPILOT / MAX SPEED

AP SERVOS NOT FOUND / TOUCH TO SCAN

AP SERVO CAL REQD / TOUCH TO BEGIN

AP SERVO TEST REQD / TOUCH TO BEGIN

ADAHRS

USING AHRS:# /

SV-ADAHRS

XBOW500-AHRS

XBOW525-AHRS

AFS-AHRS

FSX-AHRS

DEMO-AHRS

VN200-AHRS

D6/10/100-AHRS

GARMIN-G5

MAGNETOMETER /

ERROR

TOUCH TO CALIBRATE

CALIBRATION

WARNING: /

AHRS MISMATCH

AHRS 1 OFFLINE

AHRS 2 OFFLINE

BACKUP EFIS OFFLINE

AHRS AIDING FAIL

AHRS AIDING OFF

Landing Gear

GEAR: UP

GEAR: DOWN

GEAR: TRANS

GEAR: ERROR

OVERSPEED

RAISE GEAR

POSN SWITCH

RUNWAY

WATER

Misc

TOUCH TO VERIFY / EMERGENCY SETTINGS

PLEASE VERIFY / EMERGENCY SETTINGS

GPS OFFLINE

GNAV1

GNAV2

GNAV3

GPS1

GPS2

GPS3

GPS INTEGRITY

GNAV1

GNAV2

GNAV3

GPS1

GPS2

GPS3

HIGH RES TERRAIN / NOT FOUND

AOA CAL /

FLAPS UP, CP: ***

FLAPS DN, CP: ***

SAVING SCREENSHOT <name> /

PLEASE WAIT

OUT-OF-MEMORY

HW ERROR DETECTED / PLEASE CONTACT AFS

MAINTENANCE DUE / TOUCH TO UPDATE

ON BATTERY / ## VOLTS

SD CARD / READY

SD CARD / NOT FOUND

USB MEDIA / READY

PLAYBACK MODE ACTIVE / DO NOT OPERATE AIRCRAFT

WARNING: INSUFFICIENT MEMORY / PLEASE CONTACT AFS_SUPPORT

CO Detector

CO-DETECT /

OFFLINE

CHECK BIO DATA

CABIN ALTITUDE ### FEET

CABIN ALTITUDE ### METERS

CO LEVEL ## PPM

SPO2 ##%

HR: ## BPM

Flight Planning

VERTICAL TRANSITION /

CLIMB TO ### IN ## SEC

DESCEND TO ### IN ## SEC

LEVEL AT ### ## IN ## SEC

LATERAL TRANSITION / TURN TO HDG: ### IN ## SEC

SET ILS / INBOUND COURSE

CROSSING FL180 BARO / SET TO STD

ADJUST ALTITUDE BUG / AT OR BELOW ##

Transponder

TRANSPONDER /

UPGRADE AVAILABLE

TX RESTART

DPSK UNLOCK

RX PSU FAIL

RX FAULT3

RX FAULT4

SYTH UNLOCK

TX FAULT2

ANT FAULT (#W)

TX LOW PWR (#W)

TX PSU HI (#V)

TX PSU LO (#V)

SQTR FAIL

REMOTE HOT (#C)

NO ADSB POS

GENERIC FAULT

TRANSPONDER UPGRADE: #% / DO NOT REMOVE POWER

UPGRADE FAILED / CONTACT AFS FOR SUPPORT

UPGRADE COMPLETE / CYCLE POWER TO TRANSPONDER

COPYING FILE #%

ERROR COPY FILE / *filename*

COPY FILE DONE

WRITING FILE

TRAFFIC AUDIO / ENABLED

TRAFFIC AUDIO / DISABLED

SV NETWORK / TOUCH TO UPDATE

SV NETWORK / NEEDS UPDATE

Audio Panel

CALL FROM: # / TOUCH TO ANSWER

CALL TIME: ##:##

TOUCH TO HANG UP

CALL ENDED

Engine Alarms

ALARM /

ALTITUDE

AOA

AIRSPEED

BAT VOLTS

MAIN VOLTS

OAT

AUX VOLTS

VERTSPEED

FUEL_COMP

RPM

MANIFOLD

FUEL PSI

FUEL FLOW

AMPS

OIL PSI

OIL TEMP

CARB TEMP

TANK 1-4

ELEV TRIM

AIL TRIM

FLAP ANG

EGT 1-6

TIT 1-2

CHT 1-6

COOLENT

LANDING GEAR

GEAR OVERSPEED

MACH LIMIT

Inputs

EFIS 1-3 /

TANK TRANSFER

CANOPY

FLAPS

GEAR DOWN

CONFIRM

GEAR UP

TANK 3 XFER

TANK 4 XFER

PITOT WARN

STALL WARN

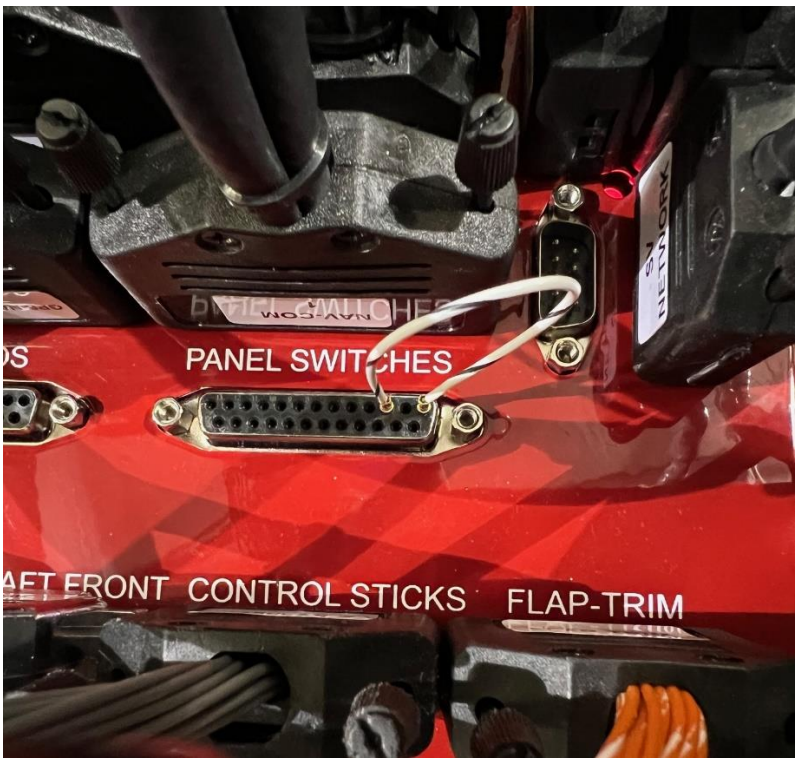
ACM Switch Wiring Troubleshooting

To turn ON a circuit in the ACM you need to ground the switch pin. Pin 1 on the ACM Switch Panel connector is a ground that can be used to jumper to each switch input for testing purposes. When a switch input is grounded the circuit should have a green bar indicating it is ON in the CHECK > ELEC page.

This is what the CHECK > ELEC page should look like with the ***ACM Panel Switch connector removed***.

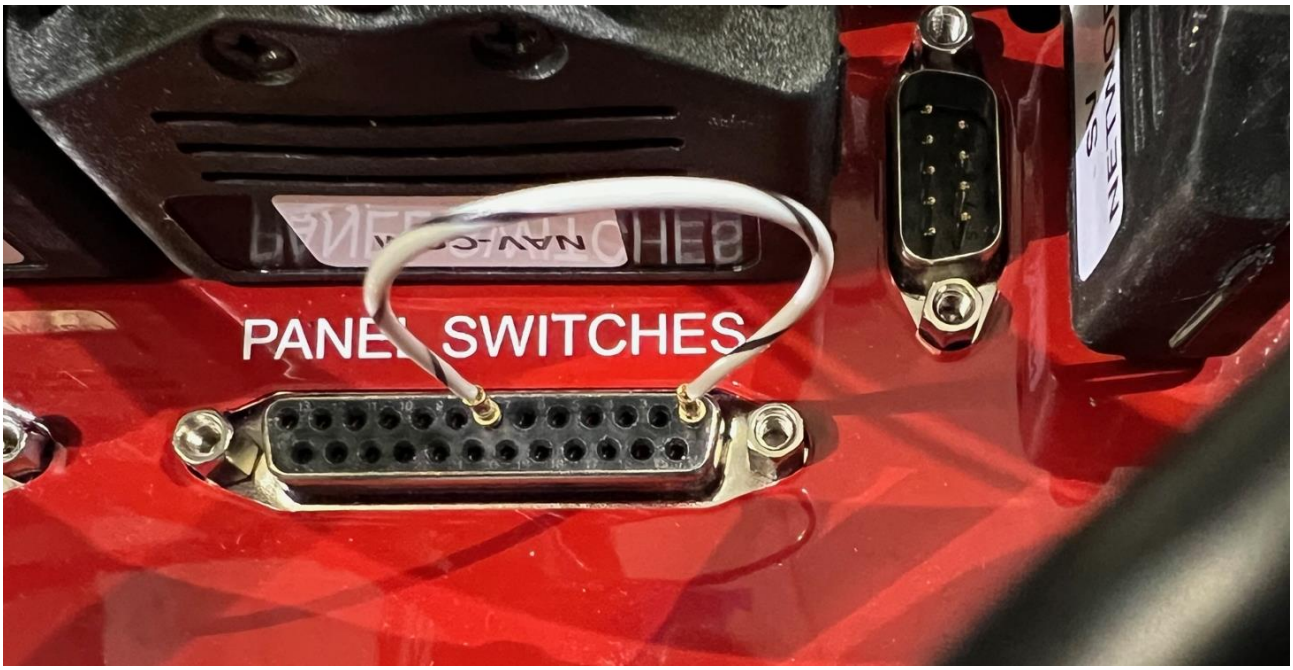
The Starter, PFD, Trim and Flaps circuits should have power (green bar above function)

If you place a jumper between the ACM Switch Connector Pin 1 and Pin 3



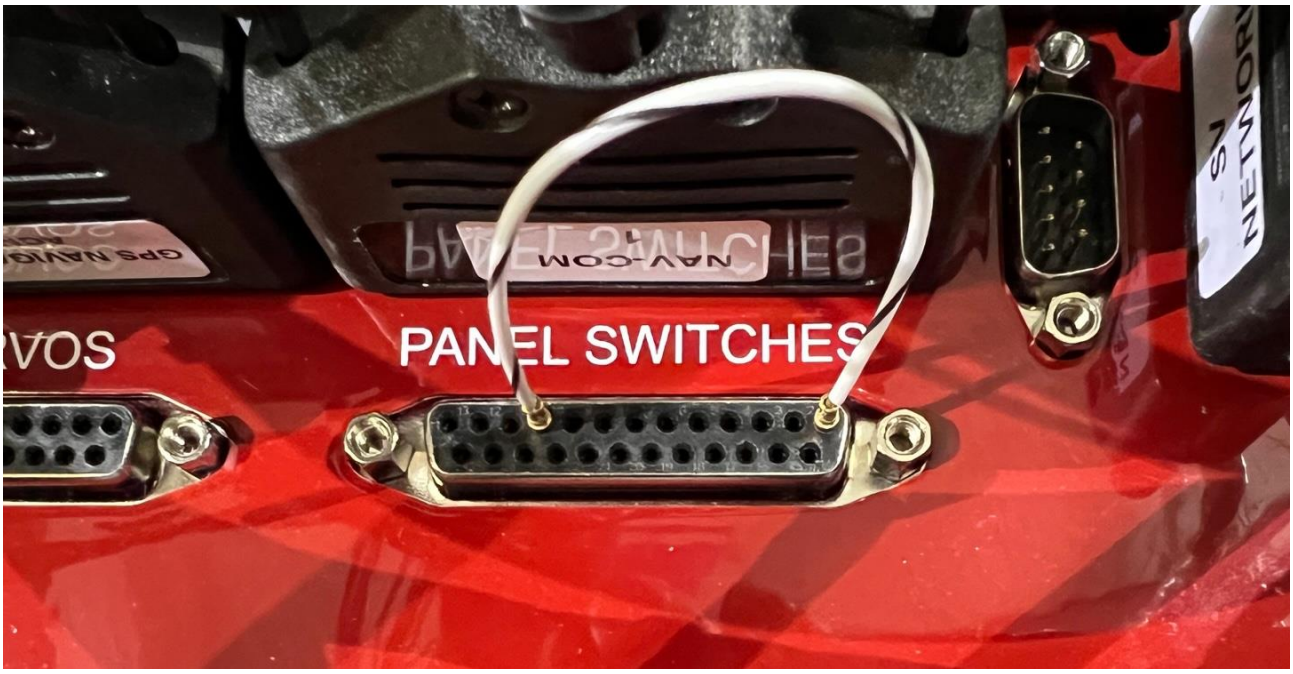
The Avionics circuits should all turn on and it should look like this:

If you place a jumper between the ACM Switch Connector Pin 1 and Pin 7



The Boost Pump circuit should turn on and it should look like this:

If you place a jumper between the ACM Switch Connector Pin 1 and Pin 10



The Defrost Fan circuit should turn on and it should look like this:

Registration Information

To receive important notification of Service Bulletins, and service difficulty reports, please EMAIL the following information to:

Info@Advanced-Flight-Systems.com

Or Mail to:

Advanced Flight Systems Inc.
320 S. Redwood St.
Canby OR 97013 USA

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Aircraft Model and N#: _____

*Engine Model :*_____

*System Model #:*_____*Serial Number:* _____

*Installer:*_____